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ABSTRACT

Presented is a compilation of materials for teachers available through ERIC that focus on mathematics instruction. Over 900 citations were selected from those listed in Resources in Education (RIE) between 1966 and 1980. Abstracts of the documents are presented in the following categories: Algebra; Applications; Calculators and Computers; Calculus; Career Education; Consumer Education; Decimals; Diagnosis; Enrichment; Environmental Concerns; Fractions; General Mathematics; Geometry; Graphing and Functions; Low Achievers; Measurement; Metric Measurement; Numbers and Numeration; Objectives; Operations; Percent/Ratio and Proportion; Planning; Probability and Statistics; Problem Solving; Testing; and a section on Varied Topics for materials that include more than two distinct areas. Subject and author indexes are also included. (MP)

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1966-1980

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Especially for Teachers:

ERIC®

Documents on the
Teaching of Mathematics
1966-80

Compiled by
Marilyn N. Suydam
and
Jon L. Higgins

February, 1981

Produced by the ERIC Clearinghouse on Science, Mathematics, and Environmental Education, the ERIC Clearinghouse on Reading and Communication Skills and the SMEAC Information Reference Center (The Ohio State University). The publication is available in paper copy from the SMEAC Information Reference Center for $6.00. Discounts are available on volume purchases.

SMEAC Information Reference Center
The Ohio State University
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Columbus, OH 43212

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FOREWORD

The Educational Resources Information Center (ERIC) is a national information system developed by the U.S. Office of Education and now sponsored by the National Institute of Education (NIE). Through its network of specialized clearinghouses, each of which is responsible for a particular educational area, ERIC acquires, evaluates, abstracts, and indexes current significant information and lists this information in its publications, Resources In Education (RIE) and Current Index to Journals in Education (CIJE). It provides ready access to descriptions of exemplary programs, research and development efforts, and related information useful in developing more effective educational programs. The ERIC system makes available--through the ERIC Document Reproduction Service--much informative data.

However, if the findings of specific educational research are to be intelligible to teachers and applicable to teaching, considerable bodies of data must be reevaluated, focused, translated, and molded into an essentially different context. Realizing this need, NIE has directed the separate ERIC clearinghouses to develop information analysis papers in specific areas within the scope of the clearinghouses.

In a further refinement of efforts at information dissemination, ERIC has begun to develop tools especially designed for classroom teachers in specific content areas. The annotated bibliographies that comprise these tools reflect a unique way of partitioning the ERIC data base to provide teachers and their resource persons with direct and rapid aid for solving everyday problems.

We are pleased to announce, as part of the continuing series "Especially for Teachers," this publication of "ERIC Documents on the Teaching of Mathematics."

Robert E. Chesley
Head, ERIC

Note:

This publication is a cooperative effort of two ERIC Clearinghouses and the SMEAC Information Reference Center at The Ohio State University. Materials listed were selected by Dr. Suydam and Dr. Higgins especially for teachers.

If you find this publication helpful, you may also want to order the compilations of abstracts for Resources in Education produced by this Clearinghouse. Publication lists can be requested from the ERIC Clearinghouse for Science, Mathematics, and Environmental Education or the SMEAC Information Reference Center.

If you have comments on this or any other ERIC/SMEAC publication, please send them to us. We appreciate the past comments we've received.

Robert W. Howe
Director
ERIC/SMEAC

ERIC/SMEAC
The Ohio State University
1200 Chambers Road, Rm. 310
Columbus, OH 43212

INTRODUCTION

Try as they might, classroom teachers often do not have enough information at their fingertips to revitalize their lesson plans. They feel the urge to stimulate student learning with fresh teaching approaches, but they wonder how and where they can find the information. They need ready references without having to buy all the "how-to" books on the market. The ERIC database has responded to these needs for many years, offering access to the shared secrets of teachers, administrators, and educational researchers. Now, as part of a systemwide effort to provide information analysis products of current interest to particular users, the ERIC Clearinghouse for Science, Mathematics, and Environmental Education in cooperation with the ERIC Clearinghouse on Reading and Communication Skills offers this compilation of teaching materials for mathematics instruction.

Designed to supplement the day-to-day planning, teaching, and evaluation activities of mathematics teachers at all educational levels, this compilation contains over 900 citations chosen after careful review of documents that appeared in Resources in Education from 1966 to 1980. Annotations of articles from the Current Index to Journals in Education were not included. Since a document's selection for this bibliography was made on the basis of timeliness, teacher orientation, and nonrepetitiveness in relation to the other 2,100 documents reviewed, the omission of a document is not to be taken as a judgment of its quality. For the purposes of this bibliography, the term "teacher" represents both parents as the teachers of their preschool children and instructors of adults, young adults, children, and adolescents.

The classification scheme reflected in the Table of Contents, developed from staff recommendations and interviews with teachers, indicates the range of the ERIC database and the nature of the materials in the database. An index using terms from the ERIC Thesaurus of Descriptors provided another avenue of approach to the literature.

Knowing the diversity of teaching styles and teachers' wide-ranging interests and activities, we urge satisfied users of this compilation to return to the ERIC database for additional ideas.

AVAILABILITY OF DOCUMENTS

Copies of most documents announced in this index can be read in their entirety on microfiche reader/printers at any one of the 700 libraries or institutions that subscribe to the ERIC Microfiche Collection. If the author or corporate source of the document did not give permission for the document to be included in the ERIC Microfiche Collection, another source of availability will be noted in the citation. For a complete listing of ERIC Microfiche Collections in your area, call or write to the ERIC Clearinghouse for Science, Mathematics, and Environmental Education, 1200 Chambers Road, Rm. 310, Columbus, OH 43212 (614-422-6717).

Documents are also available in both microfiche (MF) and paper copy (PC) or microfiche only from the ERIC Document Reproduction Service (EDRS), Computer Microfilm International Corporation, P.O. Box 190, Arlington, VA 22210. The price per document is based on the number of pages and is subject to change over time. The ERIC Price Code Schedule permits the user to convert all price codes to actual dollar amounts. Orders for 33 or more microfiche (MF) and all orders for paper copies (PC) will be shipped via United Parcel Service unless otherwise instructed. When ordering from EDRS, please specify MF or PC and include the ERIC Document (ED) number and the pagination of the document. Payment or an authorized original purchase order must accompany all orders.

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Organization where document originated

Date published

Descriptive Note (pagination first)

Publication Type--broad categories indicating the form or organization of the document, as contrasted to its subject matter. The category name is followed by the category code.

ERIC Document Reproduction Service (EDRS) Availability "MF" means microfiche, "PC" means reproduced paper copy. When described as "Document Not Available from EDRS," alternate sources are cited above. Prices are subject to change; for latest price code schedule see section on "How to Order ERIC Documents," in the most recent issue of RIE.

2500 ED 175 652

CSMP Mathematics for the Upper Primary Grades Part II, Teacher's Guide. The Languages of Strings and Arrows. Geometry and Measurement. Workbooks. Final Experimental Version.

Central Midwestern Regional Educational Lab., St. Ann, Mo.

Spons Agency—National Inst. of Education (DHEW), Washington, D.C.

Pub Date—79

Note—346p.; For related documents, see SE 027 875-892; Contains colored charts and activities which may not reproduce well; Not available in hard copy due to copyright restrictions

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Curriculum Development, *Curriculum Guides, Early Childhood Education, *Elementary School Mathematics, Geometry, *Instructional Materials, Mathematical Logic, *Mathematics Curriculum, *Mathematics Instruction, Measurement, *Number Concepts, Primary Education, Set Theory, Teaching Guides, Textbooks, Workbooks

Identifiers—*Comprehensive School Mathematics Program

This guide represents the final experimental version of an extended pilot project which was conducted in the United States between 1973 and 1976. The manner of presentation and the pedagogical ideas and tools are based on the works of Georges and Frederique Papy. They are recognized as having introduced colored arrow drawings ("papygrams") and models of our numeration system (the Papy "minicomputer") into the teaching of mathematics at the elementary and secondary level in Belgium. The CSMP curriculum follows the "spiral approach." The text begins with exercises in the Language of Strings and Arrows. These are intended to teach the skills of classification and provide a language for studying and talking about relationships. The section entitled Geometry and Measurement emphasizes "experience" rather than "mastery." Activities deal with distance and measurement in an unsophisticated sense. Five workbooks are included with problems of varying levels of difficulty all in one booklet. The first ten problems of each booklet are easy problems, the next ten to twelve pages are average level difficulty, and the last ten pages are more challenging problems. The students have the opportunity to work individually with the workbook sections. (Author/SA)

ERIC Accession Number--identification number sequentially assigned to documents as they are processed.

Sponsoring Agency--agency responsible for initiating, funding, and managing the research project.

Descriptors--subject terms which characterize substantive content. Only the major terms, preceded by an asterisk, are printed in the subject index.

Identifiers--additional identifying terms not found in the Thesaurus of ERIC Descriptors. Only the major terms, preceded by an asterisk, are printed in the subject index.

Informative Abstract

Abstractor's Initials

*Index Code Numbers are used only within this index. They indicate chapter topic and are assigned sequentially. In the subject index the code numbers provide access points to the abstract in the main body of the index. Retrieval of documents by microfiche requires the ERIC Document (ED) number.

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ALGEBRA

0001 ED 183 402
Brotherton, Sheila And Others
Boolean Algebra. Geometry Models for Use in a Mathematics Laboratory Setting.
Regional Center for Pre-Coll. Mathematics, Denver, Colo.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—74
Grant—NSF-GW-7720
Note—68p.; For related documents, see SE 030 304-322; Contains light and broken type; Computer print-outs marginally legible
Pub Type— Guides - Classroom - Learner (051) — Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—*Activities, Computer Oriented Programs, Electric Circuits, Geometric Concepts, Geometry, *Learning Laboratories, Logic, Mathematical Applications, *Mathematical Enrichment, *Mathematical Logic, Mathematics Curriculum, *Mathematics Instruction, Secondary Education, *Secondary School Mathematics, Worksheets

This module is recommended as an honors unit to follow a unit on logic. There are four basic parts: (1) What is a Boolean Algebra; (2) Using Boolean Algebra to Prove Theorems; (3) Using Boolean Algebra to Simplify Logical Statements; and (4) Circuit Problems with Logic and Boolean Algebra. Of these, sections 1, 2, and 3 are primarily written exercises. Section 4 involves modeling problems on a circuit board. Some supplementary materials are included at the end of the module. An additional section on computer-extended Boolean Algebra appears at the end of the teacher's guide. (Author/MK)

0002 ED 180 755
Bless, Murray M. And Others
Math 1715/1613 (PIPI): Algebra and Trigonometry.
Oklahoma State Univ., Stillwater. Coll. of Engineering.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—Jan 72
Grant—NSF-GY-9310
Note—150p.; For related document, see SE 029 357
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—Audiovisual Aids, College Curriculum, *College Mathematics, Competency Based Education, *Higher Education, *Mastery Learning, *Mathematics Curriculum, Mathematics Instruction, Probability, Problems, *Programed Instruction, Programed Instructional Materials, Self Evaluation, *Study Guides, Trigonometry
Identifiers—*Functions (Mathematics)

This study guide, designed for use at Oklahoma State University, contains lists of activities for students to perform based on the "mastery of learning" concept. The activities include readings, problems, self evaluations, and assessment tasks. The units included are: Functions, Exponential and Logarithmic Functions, Trigonometric Functions, Polynomial Functions, Trigonometric Equations and Identities, Numerical Trigonometry, Combinatorics, Probability, Linear Algebra, Complex Numbers, and Sequences. (MK)

0003 ED 180 752
Benjamin, Carl And Others
College Algebra II.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—[75]
Grant—NSF-GZ-2998
Note—77p.; For related documents, see SE 029 345-347; Colored pages may not reproduce well
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—*Algebra, *College Mathematics, Criterion Referenced Tests, *Diagnostic Tests, *Educational Objectives, Fractions, Higher Education, Number Systems, *Performance Criteria, Set Theory, Tests
Identifiers—*Equations (Mathematics)

Presented are student performance objectives, a student progress chart, and assignment sheets with objective and diagnostic measures for the stated performance objectives in College Algebra II. Topics covered include: differencing and complements; real numbers; factoring; fractions; linear equations; exponents and radicals; complex numbers, relations and functions; quadratics; determinants; factorials, combinations and permutations; binomial theorem; summation motation; and progressions. (MK)

0004 ED 180 751
Benjamin, Carl And Others
College Algebra I.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—[75]
Grant—NSF-GZ-2998
Note—123p.; For related documents, see SE 029 345-348; Colored pages may not reproduce well
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—*Algebra, *College Mathematics, *Criterion Referenced Tests, *Diagnostic Tests, *Educational Objectives, Higher Education, Inequalities, Mathematical Vocabulary, *Performance Criteria, Ratios (Mathematics), Set Theory, Tests
Identifiers—*Equations (Mathematics)

Presented are student performance objectives, a student progress chart, and assignment sheets with objective and diagnostic measures for the stated performance objectives in College Algebra I. Topics covered include: sets; vocabulary; linear equations; inequalities; real numbers; operations; factoring; fractions; formulas; ratio, proportion, and variation; relations and Cartesian products; systems of equations; exponents; and quadratic equations. (MK)

0005 ED 176 962
Mewborn, Ancel C. Hively, Wells II
A Programmed Course in Algebra.
Minnesota Academy of Science, Minneapolis.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—69
Note—649p.
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF03/PC26 Plus Postage.
Descriptors—*Algebra, *College Mathematics, Higher Education, *Mathematics Curriculum, *Mathematics Instruction, *Mathematics Materials, *Number Systems, Programed Instructional Materials, Secondary Education, Set Theory, Textbooks
Identifiers—*Functions (Mathematics)

This programed textbook consists of short sections of text interspersed with questions designed to aid the student in understanding the material. The course is designed to increase the student's understanding of some of the basic ideas of algebra. Some general experience and manipulative skill with respect to high school algebra is assumed. Emphasis is placed upon development of the logical structure of algebra. Chapter topics include: (1) sets, relations, and functions; (2) algebra of real numbers; (3) algebraic systems; (4) order in the real number system; (5) equations and inequalities; (6) absolute value; (7) completeness of the real number system; (8) natural numbers; (9) integers; (10) rational numbers; (11) complex numbers; (12) algebra of real functions; (13) polynomials; and (14) equivalence relations and groups. (MP)

0006 ED 176 956
Haag, V. H. And Others
Introduction to Algebra (Part 2). Preliminary Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—60
Note—240p.; For related document, see ED 160 414
Pub Type— Guides - Classroom - Learner (051)

EDRS Price - MF01/PC10 Plus Postage.

Descriptors—*Algebra, Curriculum, Grade 9, *Instruction, Mathematics Education, *Number Concepts, Secondary Education, *Secondary School Mathematics, *Textbooks

Identifiers—*Number Operations (Mathematics), *School Mathematics Study Group

This is part two of a two-part SMSG algebra text for ninth-grade students. The text was written for those students whose mathematical talent is underdeveloped. Chapter topics include the real numbers, addition of real numbers, multiplication of real numbers, properties of order, and subtraction and division for real numbers. (MP)

0007 ED 173 149

Allen, Frank B. And Others

Mathematics for High School, Intermediate Mathematics (Part 3). Commentary for Teachers. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—60

Note—158p.; For related documents, see SE 028 243 and ED 135 628; Contains occasional light and broken type

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC07 Plus Postage.

Descriptors—*Algebra, Curriculum, *Curriculum Guides, *Instruction, Mathematics Education, *Number Concepts, Probability, Secondary Education, *Secondary School Mathematics

Identifiers—*School Mathematics Study Group, *Vectors (Mathematics)

This is part three of a three-part manual for teachers using SMSG high school text materials. Each chapter contains a commentary on the text, answers to the exercises, and a set of illustrative test questions. Chapter topics include: (1) the system of vectors; (2) polar form of complex numbers; (3) sequences and series; (4) permutations; (5) combinations, and the binomial theorem; and (6) algebraic structures. (MP)

0008 ED 173 148

Allen, Frank B. And Others

Mathematics for High School, Intermediate Mathematics (Part 2). Commentary for Teachers. Preliminary Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—59

Note—193p.; For related documents, see SE 028 244 and ED 135 627-628; Contains occasional light and broken type

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC08 Plus Postage.

Descriptors—*Algebra, Curriculum, *Curriculum Guides, *Instruction, Mathematics Education, *Number Systems, Secondary Education, *Secondary School Mathematics

Identifiers—*Complex Numbers, *School Mathematics Study Group

This is part two of a three-part manual for teachers using SMSG high school text materials. Each chapter contains a commentary on the text, answers to exercises, and suggested test questions. Chapter topics include quadratic equations, the complex number system, equations of the second degree, and systems of first degree equations. (MP)

0009 ED 171 559

ISS-Based Mathematics Program, Teachers Manual, Level 09, Curriculum.

Community School District 18, Brooklyn, N.Y.

Spons Agency—New York State Education Dept., Albany.; Office of Education (DHEW), Washington, D.C.

Pub Date—[79]

Note—37p.; For related document, see SE 027 740

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—*Algebra, Course Descriptions, Curriculum Development, *Curriculum Guides, Grade 9, Guides, *Mathematics Curriculum, Mathematics Education, *Objectives, Secondary Education, *Secondary School Mathematics, Teaching Guides

Identifiers—*Instructional Support System

This publication is the teachers' manual, level 9, of the Instructional Support Systems (ISS) Program, which was developed by the Community School District 18 of New York. The curriculum was designed to fulfill the requirements established by the New York State Board of Regents for the Algebra I course. Two sequences of modules are suggested, for either a two-term or three-term course of study. Instructional objectives for five topics are included: (1) equations and inequalities; (2) verbal problems; (3) polynomials, factoring, and fractions; (4) graphing; and (5) radicals and trigonometry. (HM)

0010 ED 160 464

Blakeslee, David W. And Others

Programed First Course in Algebra, Revised Form H, Teacher's Commentary, Unit 63.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—65

Note—149p.; For related documents, see SE 025 140-142; Not available in hard copy due to marginal legibility of original document

Pub Type— Guides - General (050)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—*Algebra, Curriculum, *Instruction, Mathematics Education, *Programed Instruction, Secondary Education, *Secondary School Mathematics, *Teaching Guides

Identifiers—*School Mathematics Study Group

This is a manual for teachers using SMSG high school programed text materials in algebra. The commentary is organized into four parts. The first part contains a discussion of ways to use this programed text. The second and main part consists of a chapter by chapter commentary on the text. The third part is a listing of topics keyed to a list of supplementary references from the volumes of the "New Mathematical Library" (NML), which is a series of expository monographs produced by the School Mathematics Study Group and aimed at the level of maturity of the secondary school pupil. The fourth part contains suggested test items. (MP)

0011 ED 160 462

Buck, R. Creighton And Others

Programed First Course in Algebra, Revised Form H, Student's Text, Part II, Unit 61.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—65

Note—599p.; For related documents, see SE 025-140-143; Not available in hard copy due to marginal legibility of original document

Pub Type— Books (010)

EDRS Price - MF03 Plus Postage. PC Not Available from EDRS.

Descriptors—*Algebra, Curriculum, *Instructional Materials, Mathematics Education, *Programed Instruction, Secondary Education, *Secondary School Mathematics, *Textbooks

Identifiers—*School Mathematics Study Group

This is part two of a two-part SMSG Programed Algebra Text for high school students. The general plan of the course is to build upon the student's experience with arithmetic. This part begins with factorization of positive integers and then develops the manipulative skills of fractions, exponents, radicals, and polynomials. The text then moves to more advanced topics including rational expressions, equivalent equations, and inequalities. Chapter topics include: factors and divisibility; fractions; exponents; radicals; polynomials and factoring; quadratic polynomials; dividing polynomials; rational expressions; truth sets of open sentences; the graph of a linear equation; graphs of other open sentences in two variables; systems of equations and inequalities; graphs of quadratic polynomials; and functions. Response sheets are contained in the separate "Student's Response Booklet." (MP)

0012 ED 160 461

Buck, R. Creighton And Others

Programmed First Course in Algebra, Revised Form H, Student's Text, Part I, Unit 60.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—64

Note—445p.; For related documents, see SE 025 141-143; Not available in hard copy due to marginal legibility of original document

Pub Type— Books (010)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—*Algebra, Curriculum, *Instructional Materials, Mathematics Education, *Programed Instruction, Secondary Education, *Secondary School Mathematics, *Textbooks

Identifiers—*School Mathematics Study Group

This is part one of a two-part SMSG Programed Algebra Text for high school students. The general plan of the course is to build upon the student's experience with arithmetic. The student is initially led to extract from his or her experience the fundamental properties of addition and multiplication. The text then introduces negative real numbers and extends the fundamental operations to develop the real number system. Chapter topics include: sets and the number line; numerals and variables; sentences; properties of operations; open sentences and English sentences; the real numbers; properties of addition; properties of multiplication; multiplicative inverse; properties of order; and subtraction and division. (MP)

0013 ED 160 416

Haag, V. H. And Others

Introduction to Algebra, Teacher's Commentary, Part II, Unit 46. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—65

Note—348p.; For related documents, see SE 025 036-038; Contains occasional light and broken type

Pub Type— Guides - General (050)

EDRS Price - MF01/PC14 Plus Postage.

Descriptors—*Algebra, Curriculum, *Grade 9, *Instruction, Mathematical Formulas, Mathematics Education, Number Concepts, Secondary Education, *Secondary School Mathematics, *Teaching Guides

Identifiers—Polynomials, *School Mathematics Study Group

This is part two of a two-part manual for teachers using SMSG text materials for grade 9 students whose mathematical talents are underdeveloped. The overall purpose for each of the chapters is described and the mathematical development detailed. Background information for key concepts, answers for all exercises in each chapter, and suggested test items are provided. Chapter topics include: (1) factors and exponents; (2) radicals; (3) polynomials; (4) rational expressions; (5) truth sets of open sentences; (6) truth sets and graphs of sentences in two variables; (7) systems of open sentences; (8) quadratic polynomials; and (9) functions. (MN)

0014 ED 160 415

Haag, V. H. And Others

Introduction to Algebra, Teacher's Commentary, Part I, Unit 45. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—65

Note—342p.; For related documents, see SE 025 036-039; Contains occasional light and broken type

Pub Type— Guides - General (050)

EDRS Price - MF01/PC14 Plus Postage.

Descriptors—*Algebra, Curriculum, *Grade 9, *Instruction, Mathematics Education, Number Concepts, Secondary Education, *Secondary School Mathematics, Set Theory, *Teaching Guides

Identifiers—Mathematical Sentences, *School Mathematics Study Group

This is part one of a two-part manual for teachers using SMSG text materials for grade 9 students whose mathematical talents are underdeveloped. The overall purpose for each of the chapters is described and the mathematical development detailed. Background information for key concepts, answers for all exercises in each chapter, and suggested test items are provided. Chapter topics include: (1) sets and the number line; (2) numerals, sentences, and variables; (3) open sentences and truth sets; (4) properties of operations; (5) open sentences and word sentences; (6) real numbers and the four basic operations; and (7) properties of order. (MN)

0015 ED 160 414

Haag, V. H. And Others

Introduction to Algebra, Student's Text, Part II, Unit 44. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—65

Note—445p.; For related documents, see SE 025 036-039; Contains light and broken type

Pub Type— Books (010)

EDRS Price - MF01/PC18 Plus Postage.

Descriptors—*Algebra, Curriculum, *Grade 9, *Instructional Materials, Mathematical Formulas, Mathematics Education, Number Concepts, Secondary Education, *Secondary School Mathematics, *Textbooks

Identifiers—Polynomials, *School Mathematics Study Group

This is part two of a two-part SMSG text in algebra for students whose mathematical talents are underdeveloped. Additional drill materials are included in this text and terminology is kept to a minimum. Chapter topics include: (1) factors and exponents; (2) radicals; (3) polynomials; (4) rational expressions; (5) truth sets of open sentences; (6) truth sets and graphs of sentences in two variables; (7) systems of open sentences; (8) quadratic polynomials; and (9) functions. (MN)

0016 ED 160 413

Haag, V. H. And Others

Introduction to Algebra, Student's Text, Part I, Unit 43. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—65

Note—462p.; For related documents, see SE 025 037-039; Contains light and broken type

Pub Type— Books (010)

EDRS Price - MF01/PC19 Plus Postage.

Descriptors—*Algebra, Curriculum, *Grade 9, *Instructional Materials, Mathematics Education, Number Concepts, Secondary Education, *Secondary School Mathematics, Set Theory, *Textbooks

Identifiers—Mathematical Sentences, *School Mathematics Study Group

This is part one of a two-part SMSG text in algebra for students whose mathematical talents are underdeveloped. Additional drill materials are included in this text and terminology is kept to a minimum. Chapter topics include: (1) sets and the number lines; (2) numerals, sentences, and variables; (3) open sentences and truth sets; (4) properties of operations; (5) open sentences and word sentences; (6) real numbers and the four basic operations; and (7) properties of order. (MN)

0017 ED 143 558

Syer, Henry W., Ed.

Supplementary and Enrichment Series: Algebraic Structures.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Report No.—SMSG-SP-16

Pub Date—65

Note—37p.; Contains numerous light type

Pub Type— Books (010)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—*Algebra, *Instructional Materials, Mathematics, Number Concepts, Secondary Education, *Secondary School Mathematics, *Textbooks

Identifiers—*Group Theory, *School Mathematics Study Group

This is one of a series of publications written to supplement the secondary school School Mathematics Study Group program. This booklet will be most useful for enrichment at the eleventh and twelfth grade levels. It treats algebraic structures as abstract mathematical systems and introduces such important ideas as group, non-abelian group, field, and subfield. Proofs are rigorous, but not tedious. Answers to the problems are found in the back of the book. As background, the reader needs to be familiar with the following sets of numbers: integers, rationals, reals, and complex numbers. (Author/RH)

0018 ED 143 549

Clarkson, Donald R., Ed. And Others

Studies in Mathematics, Volume VIII. Concepts of Algebra. Preliminary Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—61

Note—471p.; For related documents, see SE 023 028-041

Pub Type— Books (010)

EDRS Price - MF01/PC19 Plus Postage.

Descriptors—*Algebra, *Inservice Education, Instructional Materials, *Number Concepts, *Secondary School Mathematics, *Teaching Guides

Identifiers—*School Mathematics Study Group

This volume is designed to provide information for teachers and prospective teachers who will teach the basic concepts of algebra normally taught in grade 9. Each section of the book contains background information, suggestions for instruction, and problems. Sections in the book include: (1) Numerals and Variables; (2) Open Sentences and English Sentences; (3) The Real Numbers; (4) Properties of Order; and (5) Additive and Multiplicative Inverses. Answers to problems are at the end of the book. (RH)

0019 ED 143 545

Haag, Vincent H.

Studies in Mathematics, Volume III. Structure of Elementary Algebra. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—61

Note—233p.; For related documents, see SE 023 028-041

Pub Type— Books (010)

EDRS Price - MF01/PC10 Plus Postage.

Descriptors—*Algebra, Inservice Education, *Instructional Materials, Resource Materials, Secondary Education, *Secondary School Mathematics, Teacher Education, *Teaching Guides, Textbooks

Identifiers—*School Mathematics Study Group

These materials are intended to explain the approach adopted by the writers of the SMSG textbook, First Course in Algebra. This book is not a ninth-grade textbook or teacher's commentary. Many of the ideas presented are too difficult for most beginning students, but they are ideas which the author believes teachers should master. It is assumed that the teacher already masters these skills. Chapters included are: (1) Historical Background; (2) Language; (3) Structure of the Real Number System; (4) Sub-Systems of the Real Numbers; (5) Completeness of the Real Number System; and (6) Functions. The appendices include materials on infinite decimals, complex numbers, algebraic numbers, and answers to exercises. (RH)

0020 ED 137 083

Greenfield, Donald R.

Condensing Algebra for Technical Mathematics.

Pub Date—76

Note—262p.; Ed.D. Dissertation, Nova University; Appendices B and C have been removed due to copyright restrictions; Contains light and broken type

Pub Type— Dissertations/Theses - Undetermined (040)

EDRS Price - MF01/PC11 Plus Postage.

Descriptors—*Algebra, *College Mathematics, Community Colleges, Curriculum, Doctoral Dissertations, Higher Education, Instruction, *Instructional Materials, Mathematics Education, *Research, Technical Education, *Technical Mathematics

Twenty Algebra-Packets (A-PAKS) were developed by the investigator for technical education students at the community college level. Each packet contained a statement of rationale, learning objectives, performance activities, performance test, and performance test answer key. The A-PAKS condensed the usual sixteen weeks of algebra into a six-week period. An experimental group of 25 technical mathematics students completed the A-PAKS. Each member of the "traditional" group was selected from the total population of students taking technical mathematics during the years 1970-1975, and was matched to a student in the experimental group based on percentile scores on the standardized Hundred-Problem Arithmetic Skills Test. At the end of the A-PAK treatment, a standardized algebra test was administered to the experimental group and a student course-evaluation questionnaire was given. Results showed that the experimental group scored significantly higher (p .05) on the algebra test than the "traditional" group. Results of the questionnaire showed that students liked the A-PAK procedure. Appendices include the A-PAKS, along with copies of the tests and the questionnaire given to the students. (DT)

0021 ED 135 632

Allen, Frank B. And Others

Introduction to Matrix Algebra, Teacher's Commentary, Unit 24.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—61

Note—283p.; For related documents, see SE 021 987-022 001 and ED 130 870-877

Pub Type— Guides - General (050)

EDRS Price - MF01/PC12 Plus Postage.

Descriptors—Algebra, *Curriculum, Elementary Secondary Education, *Instruction, Mathematics Education, *Matrices, *Secondary School Mathematics, *Teaching Guides

Identifiers—*School Mathematics Study Group

This twenty-fourth unit in the SMSG secondary school mathematics series is the teacher's commentary for Unit 23. For each of the chapters in Unit 23, a time allotment is suggested, the goals for that chapter are discussed, the mathematics is explained, some teaching suggestions are given, and answers to exercises are provided. In the appendix is a general discussion of the research exercises described in the appendix of the student's text, followed by the mathematical details for each of the four research exercises. (DT)

0022 ED 135 631

Allen, Frank B. And Others

Introduction to Matrix Algebra, Student's Text, Unit 23.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—61

Note—243p.; For related documents, see SE 021 987-022 002 and ED 130 870-877

Pub Type— Books (010)

EDRS Price - MF01/PC10 Plus Postage.

Descriptors—Algebra, *Curriculum, Elementary Secondary Education, Instruction, *Instructional Materials, Mathematics Education, *Matrices, *Secondary School Mathematics, *Textbooks

Identifiers—*School Mathematics Study Group

Unit 23 in the SMSG secondary school mathematics series is a student text covering the following topics in matrix algebra: matrix operations, the algebra of 2 X 2 matrices, matrices and linear systems, representation of column matrices as geometric vectors, and transformations of the plane. Listed in the appendix are four research exercises in matrix algebra. (DT)

0023 ED 135 628

Allen, Frank B. And Others

Intermediate Mathematics, Teacher's Commentary, Part II, Unit 20.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—61

Note—319p.; For related documents, see SE 021 987-022 002 and ED 130 870-877; Contains occasional light type

Pub Type— Guides - General (050)

EDRS Price - MF01/PC13 Plus Postage.

Descriptors—*Algebra, *Curriculum, Elementary Secondary Education, *Instruction, Mathematics Education, Probability, *Secondary School Mathematics, *Teaching Guides, *Trigonometry

Identifiers—*School Mathematics Study Group

This twentieth unit in the SMSG secondary school mathematics series is the teacher's commentary for Unit 18. For each of the chapters in Unit 18, the goals for that chapter are discussed, the mathematics is explained, some teaching suggestions are given, answers to exercises are provided, and sample text questions are included. (DT)

0024 ED 135 627
Allen, Frank B. And Others
Intermediate Mathematics, Teacher's Commentary, Part I, Unit 19.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—61
Note—550p.; For related documents, see SE 021 987-022 002 and ED 130 870-877; Contains occasional light type
Pub Type— Guides - General (050)
EDRS Price - MF02/PC22 Plus Postage.
Descriptors—*Algebra, Analytic Geometry, *Curriculum, Elementary Secondary Education, *Instruction, Mathematics Education, Number Systems, *Secondary School Mathematics, *Teaching Guides
Identifiers—*School Mathematics Study Group

This nineteenth unit in the SMSG secondary school mathematics series is the teacher's commentary for Unit 17. First, a time allotment for each of the chapters in Units 17 and 18 is given. Then, for each of the chapters in Unit 17, the goals for that chapter are discussed, the mathematics is explained, some teaching suggestions are given, answers to exercises are provided, and sample test questions are included. (DT)

0025 ED 135 626
Allen, Frank B. And Others
Intermediate Mathematics, Student's Text, Part II, Unit 18.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—61
Note—424p.; For related documents, see SE 021 987-022 002 and ED 130 870-877; Contains occasional light and broken type
Pub Type— Books (010)
EDRS Price - MF01/PC17 Plus Postage.
Descriptors—*Algebra, *Curriculum, Elementary Secondary Education, Instruction, *Instructional Materials, Mathematics Education, Probability, *Secondary School Mathematics, *Textbooks, *Trigonometry
Identifiers—*School Mathematics Study Group

Unit 18 in the SMSG secondary school mathematics series is a student text covering the following topics: logarithms and exponents; trigonometry; the system of vectors; polar form of complex numbers; sequences and series; permutations, combinations, and the binomial theorem; and algebraic structures. (DT)

0026 ED 135 625
Allen, Frank B. And Others
Intermediate Mathematics, Student's Text, Part I, Unit 17.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—61
Note—469p.; For related documents, see SE 021 987-022 002 and ED 130 870-877; Contains occasional light and broken type
Pub Type— Books (010)
EDRS Price - MF01/PC19 Plus Postage.
Descriptors—*Algebra, Analytic Geometry, *Curriculum, Elementary Secondary Education, Instruction, *Instructional Materials, Mathematics Education, Number Systems, *Secondary School Mathematics, *Textbooks
Identifiers—*Functions (Mathematics), *School Mathematics Study Group

Unit 17 in the SMSG secondary school mathematics series is a student text covering the following topics: number systems, coordinate geometry in the plane, the function concept and the linear function, quadratic functions and equations, complex number systems, equations of the first and second degree in two variables, systems of equations in two variables, and systems of first degree equations in three variables. (DT)

0027 ED 135 620
Allen, Frank B. And Others
First Course in Algebra, Teacher's Commentary, Part II, Unit 12.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—61
Note—348p.; For related documents, see SE 021 987-022 002 and ED 130 870-877; Contains light and broken type
Pub Type— Guides - General (050)
EDRS Price - MF01/PC14 Plus Postage.
Descriptors—*Algebra, *Curriculum, Elementary Secondary Education, *Instruction, Mathematics Education, *Secondary School Mathematics, *Teaching Guides
Identifiers—*School Mathematics Study Group

This twelfth unit in the SMSG secondary school mathematics series is the teacher's commentary for Unit 10. For each of the chapters in Unit 10 the goals for that chapter are discussed, the mathematics is explained, some teaching suggestions are provided, the answers to exercises are listed, and sample test questions for that chapter are suggested. (DT)

0028 ED 135 619
Allen, Frank B. And Others
First Course in Algebra, Teacher's Commentary, Part I, Unit 11.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—61
Note—282p.; For related documents, see SE 021 987-022 002 and ED 130 870-877; Contains occasional light type
Pub Type— Guides - General (050)
EDRS Price - MF01/PC12 Plus Postage.
Descriptors—*Algebra, *Curriculum, Elementary Secondary Education, *Instruction, Mathematics Education, *Secondary School Mathematics, *Teaching Guides
Identifiers—*School Mathematics Study Group

This eleventh unit in the SMSG secondary school mathematics series is the teacher's commentary for Unit 9. First a general overview of the entire FIRST COURSE IN ALGEBRA (Units 9 and 10) is provided. Then, a time allotment for each of the chapters in Unit 9 is suggested. For each of the chapters in Unit 9, the goals for that chapter are discussed, the mathematics is explained, some teaching suggestions are provided, the answers to exercises are listed, and sample test questions for that chapter are suggested. (DT)

0029 ED 135 618
Allen, Frank B. And Others
First Course in Algebra, Student's Text, Part II, Unit 10.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—61
Note—311p.; For related documents, see SE 021 987-SE 022 002 and ED 130 870-877; Contains occasional broken type
Pub Type— Books (010)
EDRS Price - MF01/PC13 Plus Postage.
Descriptors—*Algebra, *Curriculum, Elementary Secondary Education, Instruction, *Instructional Materials, Mathematics Education, *Secondary School Mathematics, *Textbooks
Identifiers—*School Mathematics Study Group

Unit 10 in the SMSG's secondary school mathematics series is a student text covering the following topics in Algebra I: factors and exponents, radicals, polynomial and rational expressions, truth sets of open sentences, graphs of open sentences in two variables, systems of equations and inequalities, quadratic polynomials, and functions. (DT)

0030 ED 135 617
Allen, Frank B. And Others
First Course in Algebra, Student's Text, Part I, Unit 9.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—61
Note—259p.; For related documents, see SE 021 988-SE 002 002 and ED 130 870-877; Contains occasional light and broken type
Pub Type— Books (010)
EDRS Price - MF01/PC11 Plus Postage.
Descriptors—*Algebra, *Curriculum, Elementary Secondary Education, Instruction, *Instructional Materials, Mathematics Education, Number Systems, *Secondary School Mathematics, *Textbooks
Identifiers—*School Mathematics Study Group

Unit 9 in the SMSG's secondary school mathematics series is a student text covering the following topics in Algebra I: sets and the number line, numerals and variables, sentences and properties of operations, open sentences and English sentences, the real numbers, properties of addition, properties of multiplication, properties of order, and subtraction and division for real numbers. (DT)

0031 ED 123 066
Cosler, Norma, Ed.
Individualized Math Problems in Algebra. Oregon Vo-Tech Mathematics Problem Sets.
Oregon Math Education Council, Salem.; Oregon State Dept. of Education, Salem. Career and Vocational Education Section.
Pub Date—74
Note—13p.; For related documents, see SE 020 628-648
Available from—Continuing Education Publications, P.O. Box 1491, Portland, Oregon 97207
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Algebra, Individualized Instruction, *Instructional Materials, Mathematical Applications, Mathematics Education, *Problem Sets, Secondary Education, *Secondary School Mathematics, *Vocational Education
Identifiers—*Oregon Vo Tech Math Project

This is one of eighteen sets of individualized mathematics problems developed by the Oregon Vo-Tech Math Project. Each of these problem packages is organized around a mathematical topic, and contains problems related to diverse vocations. Solutions are provided for all problems. Problems presented in this package concern ratios used in food processing, gear ratios in automobiles, and electronic circuitry. The electronics problems involve complex numbers. (SD)

0032 ED 098 063
Holland, Bill
Learning Activity Package, Algebra 124, LAPs 46-55.
Ninety Six High School, S. C.
Pub Date—[73]
Note—130p.; See ED 069 505 for related document
Pub Type— Guides - General (050)
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—*Algebra, Curriculum, *Individualized Instruction, *Instructional Materials, *Learning Modules, Mathematics Education, Objectives, Probability, *Secondary School Mathematics, Statistics, Teacher Developed Materials, Teaching Guides, *Trigonometry, Units of Study

A series of 10 teacher-prepared Learning Activity Packages (LAPs) in advanced algebra and trigonometry, these units cover absolute value, inequalities, exponents, radicals, and complex numbers; functions; higher degree equations and the derivative; the trigonometric functions; graphs and applications of the trigonometric functions; sequences and series; permutations, combinations, and probability; descriptive statistics; special theorems and functions; and matrices and vectors. The units each contain a rationale for the material being covered; lists of behavioral objectives; a list of reading assignments, problem sets, tape recordings, and filmstrips that accompany the unit; a student self-evaluation problem set; suggestions for advanced study; and references. (DT)

0033 ED 098 062
Evans, Diane
Learning Activity Package, Algebra 103-104, LAPs 23-33.
Ninety Six High School, S. C.
Pub Date—[73]
Note—190p.; See ED 069 504 for related document
Pub Type— Guides - General (050)
EDRS Price - MF01/PC08 Plus Postage.
Descriptors—*Algebra, Analytic Geometry, Curriculum, *Individualized Instruction, *Instructional Materials, *Learning Modules, Mathematics Education, Number Systems, Objectives, Probability, *Secondary School Mathematics, Teacher Developed Materials, Teaching Guides, Units of Study

This set of 11 teacher-prepared Learning Activity Packages (LAPs) in intermediate algebra covers number systems; exponents and radicals; polynomials and factoring; rational expressions; coordinate geometry; relations, functions, and inequalities; quadratic equations and inequalities; Quadratic functions; systems of equations and inequalities; complex numbers; and probability. Each unit contains a rationale for the material being covered; a list of behavioral objectives; a list of resources including texts (with reading assignments and problem sets specified), tape recordings, commercial games, filmstrips, and transparencies; a problem set for student self-evaluation; suggestions for advanced study; and references. (DT)

0034 ED 098 061
Evans, Diane
Learning Activity Package, Algebra 93-94, LAPs 12-22.
Ninety Six High School, S. C.
Pub Date—[73]
Note—164p.; See ED 069 504 for related document
Pub Type— Guides - General (050)
EDRS Price - MF01/PC07 Plus Postage.
Descriptors—*Algebra, Analytic Geometry, Curriculum, *Individualized Instruction, *Instructional Materials, *Learning Modules, Mathematics Education, Number Systems, Objectives, *Secondary School Mathematics, Set Theory, Teacher Developed Materials, Teaching Guides, Units of Study

A set of 11 teacher-prepared Learning Activity Packages (LAPs) in beginning algebra, these units cover sets, properties of operations, operations over real numbers, open expressions, solution sets of equations and inequalities, equations and inequalities with two variables, solution sets of equations with two variables, exponents, factoring and polynomials, functions, and equations and their applications. Each unit contains a rationale for the material; a list of behavioral objectives; a list of resources including texts (with reading assignments and problem sets specified), tape recordings, commercial games, filmstrips, and transparencies; a problem set for student self-evaluation; suggestions for advanced study; and references. (DT)

0035 ED 093 705
Crawford, Glenda
Algebra 2a, Mathematics (Experimental): 5216.-26.
Dade County Public Schools, Miami, Fla.
Pub Date—72
Note—18p.; An Authorized Course of Instruction for the Quinmester Program. Related documents are ED 084 161 and 162 and SE 018 078
Pub Type— Guides - General (050)
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Algebra, Behavioral Objectives, *Curriculum, Instruction, Mathematics Education, Number Concepts, *Objectives, *Probability, *Secondary School Mathematics, *Teaching Guides, Tests
Identifiers—*Quinmester Program, Sequences (Mathematics)

The sixth in a series of six guidebooks on minimum course content for second-year algebra, this booklet presents an introduction to sequences, series, permutation, combinations, and probability. Included are arithmetic and geometric progressions and problems solved by counting and factorials. Overall course goals are specified, a course outline is provided, performance objectives are listed, and text references keyed to the performance objectives are included. Pre- and posttests are also given, together with answer keys. (JP)

0036 ED 093 704
Crawford, Glenda
Algebra 2s, Mathematics (Experimental); 5216.24.
Dade County Public Schools, Miami, Fla.
Pub Date—72
Note—22p.; An Authorized Course of Instruction for the Quinmester Program. Related documents are ED 084 161 and 162 and SE 018 079
Pub Type— Guides - General (050)
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—*Algebra, Behavioral Objectives, *Curriculum, Graphs, Instruction, Mathematics, Mathematics Education, Matrices, *Objectives, *Secondary School Mathematics, *Teaching Guides, Tests
Identifiers—Complex Numbers, *Quinmester Program

The fourth in a series of six guidebooks on minimum course content for second-year algebra, this booklet covers linear and quadratic relations, absolute value, graphing complex numbers, determinants and matrices, graphing quadratic relations, and solving systems of linear and quadratic equations. Overall course goals are specified, a course outline is provided, performance objectives are listed, and text references keyed to the performance objectives are provided. A sample posttest is included along with a 13-item bibliography. (JP)

0037 ED 090 022
Thompson, Russ Fuller, Albert
Algebra I, Package 03-11, Systems of Open Sentences in Two Variables.
Arnold Public Schools, Nebr.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—72
Note—48p.; For related documents, see SE 017 553 through 574
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Algebra, Grade 9, Graphs, Individualized Instruction, *Instructional Materials, Objectives, Problem Solving, *Secondary School Mathematics, *Teaching Guides, *Tests
Identifiers—Elementary Secondary Education Act Title III, Equations (Mathematics)

This teacher guide is part of the materials prepared for an individualized program for ninth-grade algebra and basic mathematics students. Materials written for the program are to be used with audiovisual lessons recorded on tape cassettes. For an evaluation of the program see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are included for each topic covered. The work for this package centers on solution techniques for systems of equations in two variables and the application of these techniques for solving verbal problems. This work was prepared under an ESEA Title III contract. (JP)

0038 ED 090 021
Thompson, Russ Fuller, Albert
Algebra I, Package 03-10, Functions, Relations, and Graphs.
Arnold Public Schools, Nebr.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—72
Note—91p.; For related documents, see SE 017 553 through 573 and SE 017 575
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—*Algebra, Analytic Geometry, Grade 9, Graphs, Individualized Instruction, *Instructional Materials, Objectives, *Secondary School Mathematics, *Teaching Guides, *Tests
Identifiers—Elementary Secondary Education Act Title III, Equations (Mathematics), *Functions (Mathematics)

This teacher guide is part of the materials prepared for an individualized program for ninth-grade algebra and basic mathematics students. Materials written for the program are to be used with audiovisual lessons recorded on tape cassettes. For an evaluation of the program see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are included for each topic covered. The work in this package centers on linear functions and their graphs. Problems whose solutions require the use of direct or inverse variation are presented. This work was prepared under an ESEA Title III contract. (JP)

0039 ED 090 020
Thompson, Russ Fuller, Albert
Algebra I, Package 03-09, Using Fractions.
Arnold Public Schools, Nebr.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—72
Note—32p.; For related documents, see SE 017 553 through 572, SE 017 574 and 575
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Algebra, Fractions, Grade 9, Individualized Instruction, Inequalities, *Instructional Materials, Objectives, Problem Solving, *Secondary School Mathematics, *Teaching Guides, *Tests
Identifiers—Algebraic Fractions, Elementary Secondary Education Act Title III

This teacher guide is part of the materials prepared for an individualized program for ninth-grade algebra and basic mathematics students. Materials written for the program are to be used with audiovisual lessons recorded on tape cassettes. For an evaluation of the program see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are included for each topic covered. Techniques are presented in this package for solving equations and inequalities constructed with algebraic fractions. This work was prepared under an ESEA Title III contract. (JP)

0040 ED 090 019
Thompson, Russ Fuller, Albert
Algebra I, Package 03-08, Operations with Fractions.
Arnold Public Schools, Nebr.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—72
Note—69p.; For related documents, see SE 017 553 through 571 and SE 017 573 through 575
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—*Algebra, Fractions, Grade 9, Individualized Instruction, *Instructional Materials, Objectives, *Secondary School Mathematics, *Teaching Guides, *Tests
Identifiers—Algebraic Fractions, Elementary Secondary Education Act Title III

This teacher guide is part of the materials prepared for an individualized program for ninth-grade algebra and basic mathematics students. Materials written for the program are to be used with audiovisual lessons recorded on tape cassettes. For an evaluation of the program see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are included for each topic covered. The content of this package centers on work with the ratio of two polynomials (fractions). Techniques for manipulating and simplifying algebraic fractions are presented. This work was prepared under an ESEA Title III contract. (JP)

0041 ED 090 018
Thompson, Russ Fuller, Albert
Algebra I, Package 03-07, Special Products and Factoring.
Arnold Public Schools, Nebr.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—72
Note—58p.; For related documents, see SE 017 553 through 570 and SE 017 572 through 575
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—*Algebra, Grade 9, Individualized Instruction, *Instructional Materials, Objectives, *Secondary School Mathematics, *Teaching Guides, *Tests
Identifiers—Elementary Secondary Education Act Title III

This teacher guide is part of the materials prepared for an individualized program for ninth-grade algebra and basic mathematics students. Materials written for the program are to be used with audiovisual lessons recorded on tape cassettes. For an evaluation of the program see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are included for each topic covered. Techniques for factoring polynomials are presented in this package. This work was prepared under an ESEA Title III contract. (JP)

0042 ED 090 017
Thompson, Russ Fuller, Albert
Algebra I, Package 03-06, Working with Polynomials.
Arnold Public Schools, Nebr.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—72
Note—57p.; For related documents, see SE 017 553 through 569 and SE 017 571 through 575
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—*Algebra, Grade 9, Individualized Instruction, *Instructional Materials, Mathematical Vocabulary, Number Concepts, Objectives, *Secondary School Mathematics, *Teaching Guides, *Tests
Identifiers—Elementary Secondary Education Act Title III, Exponentiation (Mathematics), Polynomials

This teacher guide is part of the materials prepared for an individualized program for ninth-grade algebra and basic mathematics students. Materials written for the program are to be used with audiovisual lessons recorded on tape cassettes. For an evaluation of the program see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are included for each topic covered. Work with polynomials is presented in this package. Polynomials are added, subtracted and multiplied togetner. Negative exponents and zero as an exponent are introduced together with rules for operating with exponential notation. This work was prepared under an ESEA Title III contract. (JP)

0043 ED 090 016
Thompson, Russ Fuller, Albert
Algebra I, Package 03-05, Solving Inequalities and Problems.
Arnold Public Schools, Nebr.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—72
Note—46p.; For related documents, see SE 017 553 through 568 and SE 017 570 through 575
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Algebra, Grade 9, Individualized Instruction, *Inequalities, *Instructional Materials, Objectives, Problem Solving, *Secondary School Mathematics, *Teaching Guides, Tests
Identifiers—Elementary Secondary Education Act Title III

This teacher guide is part of the materials prepared for an individualized program for ninth-grade algebra and basic mathematics students. Materials written for the program are to be used with audiovisual lessons recorded on tape cassettes. For an evaluation of the program see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are included for each topic covered. Techniques for solving inequalities are presented in this package. This work was prepared under an ESEA Title III contract. (JP)

0044 ED 090 015
Thompson, Russ Fuller, Albert
Algebra I, Package 03-04, Solving Equations and Problems.
Arnold Public Schools, Nebr.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—72
Note—42p.; For related documents; see SE 017 553 through 567 and SE 017 569 through 575
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Algebra, Grade 9, Individualized Instruction, *Instructional Materials, Objectives, Problem Solving, *Secondary School Mathematics, *Teaching Guides, *Tests
Identifiers—Elementary Secondary Education Act Title III

This teacher guide is part of the materials prepared for an individualized program for ninth-grade algebra and basic mathematics students. Materials written for the program are to be used with audiovisual lessons recorded on tape cassettes. For an evaluation of the program, see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are included for each topic covered. Techniques for solving algebraic equations are presented in this package. This work prepared under an ESEA Title III contract. (JP)

0045 ED 090 014
Thompson, Russ Fuller, Albert
Algebra I, Package 03-03, Addition and Multiplication of Real Numbers.
Arnold Public Schools, Nebr.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—72
Note—45p.; For related documents, see 017 553 through 566 and SE 017 568 through 575
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Addition, *Algebra, Deduction, Grade 9, Individualized Instruction, *Instructional Materials, Mathematical Concepts, Multiplication, Number Concepts, Objectives, *Secondary School Mathematics, *Teaching Guides, *Tests
Identifiers—Axiomatics, Elementary Secondary Education Act Title III

This teacher guide is part of the materials prepared for an individualized program for ninth-grade algebra and basic mathematics students. Materials written for the program are to be used with audiovisual lessons recorded on tape cassettes. For an evaluation of the program, see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are included for each topic covered. Properties of real numbers are developed through a set of axioms in this package. This work was prepared under an ESEA Title III contract. (JP)

0046 ED 090 013
Thompson, Russ Fuller, Albert
Algebra I, Package 03-02, The Language of Algebra.
Arnold Public Schools, Nebr.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—72
Note—32p.; For related documents, see SE 017 553 through 565 and SE 017 567 through 575
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Algebra, Grade 9, Individualized Instruction, *Instructional Materials, Mathematical Concepts, Mathematical Vocabulary, Objectives, *Secondary School Mathematics, Symbols (Mathematics), *Teaching Guides, *Tests
Identifiers—Elementary Secondary Education Act Title III

This teacher guide is part of the materials prepared for an individualized program for ninth-grade algebra and basic mathematics students. Materials written for the program are to be used with audiovisual lessons recorded on tape cassettes. For an evaluation of the program, see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are included for each topic covered. The content of this package centers on the language of algebra. The concept of a variable is developed and solution sets are found for simple equations. Provided is practice in the use of exponents and quantifiers. This work was prepared under an ESEA Title III contract. (JP)

0047 ED 090 012
Thompson, Russ Fuller, Albert
Algebra I, Package 03-01, Numbers and Sets.
Arnold Public Schools, Nebr.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—72
Note—41p.; For related documents, see SE 017 553 through 564 and SE 017 566 through 575
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Algebra, Grade 9, Individualized Instruction, *Instructional Materials, Number Concepts, Objectives, *Secondary School Mathematics, Set Theory, Symbols (Mathematics), *Teaching Guides, *Tests
Identifiers—Elementary Secondary Education Act Title III

This teacher guide is part of the materials prepared for an individualized program for ninth-grade algebra and basic mathematics students. Materials written for the program are to be used with audiovisual lessons recorded on tape cassettes. For an evaluation of the program, see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are included for each topic covered. The content of this package includes number and set concepts. The number line is used to picture sets of numbers and to develop numbers concepts. This work was prepared under an ESEA Title III contract. (JP)

0048 ED 086 549
Baker, Bruno B., Ed.
Introduction to High School Mathematics, Grade 9, Course 2.
New York State Education Dept., Albany. Bureau of Secondary Curriculum Development.
Pub Date—70
Note—79p.
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—Algebra, Basic Skills, Curriculum, *Curriculum Guides, *Geometric Concepts, Grade 9, *Number Concepts, Probability, *Remedial Mathematics, *Secondary School Mathematics, Statistics

This guide outlines the curriculum for a ninth-year mathematics course for students not prepared to cope with the usual first-year algebra course. It is intended to provide personal relevance for these students by including supplementary units on probability and statistics, slide rule use, flow charting and use of calculators, consumer mathematics, informal geometry and mathematical reasoning. The major goal of the course is to develop mathematics skills and competencies which will ensure student success in algebra. The unit topics for this purpose are: graphing; number bases; set of integers; rational numbers; metric geometry; and ratio, proportion, and percent. (JP)

0049 ED 084 162
Ellis, June
Algebra 2r, Mathematics (Experimental): 5216.23.
Dade County Public Schools, Miami, Fla.
Pub Date—72
Note—15p.; An Authorized Course of Instruction for the Quinmester Program
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—*Algebra, Behavioral Objectives, *Curriculum, Instruction, Mathematics Education, *Objectives, *Secondary School Mathematics, *Teaching Guides, Tests
Identifiers—*Quinmester Program

The third in a series of six guidebooks on minimum course content for second-year algebra, this booklet covers relations, functions, and solving and graphing linear equations, linear inequalities, systems of equations, and systems of inequalities. Overall course goals are specified, a course outline is provided, performance objectives are listed, and text references keyed to the performance objectives are given. A sample posttest is included along with a 13-item bibliography. For other booklets in this series, see SE 017 026. (DT)

0050 ED 084 161
Ellis, June
Algebra 2P, Mathematics (Experimental): 5216.-21.
Dade County Public Schools, Miami, Fla.
Pub Date—72
Note—26p.; An Authorized Course of Instruction for the Quinmester Program
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Algebra, Behavioral Objectives, *Curriculum, Instruction, Mathematics Education, *Objectives, *Secondary School Mathematics, *Teaching Guides, Tests
Identifiers—*Quinmester Program

This is the first of six guidebooks on minimum course content for second-year albebra. A survey of the real and complex number systems, solving linear equations and inequalities in one variable, and operations with polynomials are covered in this booklet. Course goals are stated, a course outline is provided, performance objectives are specified, and textbook references keyed to the performance objectives are given. Sample pretest and posttest items are included, along with a bibliography of 16 references. For other booklets in the second-year algebra series, see SE 017 027. (DT)

0051 ED 081 642
Strachan, Florence
Algebra 1r, Mathematics (Experimental): 5215.13.
Dade County Public Schools, Miami, Fla.
Pub Date—71
Note—22p.; An Authorized Course of Instruction for the Quinmester Program
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—*Algebra, Behavioral Objectives, *Curriculum, Instruction, Mathematics Education, *Objectives, *Secondary School Mathematics, *Teaching Guides, Tests
Identifiers—*Quinmester Program

This third of six guidebooks on minimum course content for first-year algebra includes work with laws of exponents; multiplication, division, and factoring of polynomials; and fundamental operations with rational algebraic expressions. Course goals are stated, performance objectives listed, a course outline provided, testbook references specified which are keyed to the course outline, and teaching strategies suggested. Pretest and posttest items are included, plus a list of three references. For other booklets in this series, see ED 067 296, ED 067 283, ED 067 284, SE 016 504, and SE 016 505. (DT)

0052 ED 080 364
Tingle, H. Burton
Algebra [Student's Individualized Career Source Package].
Sahuarita High School District 130, Ariz.
Pub Date—May 72
Note—212p.
EDRS Price - MF01/PC09 Plus Postage.
Descriptors—Activity Units, *Algebra, Curriculum Guides, *Instructional Materials, Mathematics Education, Rational Numbers, *Secondary School Mathematics, Teacher Developed Materials, Units of Study, *Worksheets

This is a volume of teacher-developed units to supplement the textbook in a first-year algebra course. The units consist mainly of statements of objectives and student worksheets with some examples and references to the textbook given as aids. Major topics covered are basic operations with signed rational numbers and with polynomials, factorization of natural numbers and polynomials, solution of first and second degree equations, graphing, and radicals. Related volumes in the series are SE 016 615, SE 016 616, and SE 016 618. (LS)

0053 ED 079 128
Weathers, Muriel
Algebra Ia, Mathematics (Experimental): 5215.16.
Dade County Public Schools, Miami, Fla.
Pub Date—71
Note—22p.; An Authorized Course of Instruction for the Quinmester Program
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—*Algebra, Behavioral Objectives, Curriculum, Instruction, Mathematics Education, *Objectives, *Secondary School Mathematics, *Teaching Guides, Tests
Identifiers—*Quinmester Program

This is the last of six guidebooks setting minimum course content for first-year algebra; it covers algebraic and graphic solutions to systems of equations, relations and functions, and variation. After course goals are stated and performance objectives listed, a course outline, textbook references, and teaching suggestions are given. Pretest and posttest items are included along with an annotated bibliography of seven references. For other booklets in this algebra series, see ED 067 283, ED 067 284, ED 067 296, and SE 016 504. (DT)

0054 ED 079 127
Hirigoyen, Hector
Algebra It, Mathematics (Experimental): 5215.15.
Dade County Public Schools, Miami, Fla.
Pub Date—71
Note—16p.; An Authorized Course of Instruction for the Quinmester Program
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—*Algebra, Behavioral Objectives, Curriculum, Instruction, Mathematics Education, *Objectives, *Secondary School Mathematics, *Teaching Guides, Tests
Identifiers—*Quinmester Program

This is the fifth of six guidebooks on minimum course content for first-year algebra; it includes operations with radicals, solutions of equations involving radicals or rational expressions, the distance formula, slope, and the slope-intercept form of the equation of a line. Course goals are stated, performance objectives listed, textbook references given, and teaching strategies suggested. Pretest and posttest items are included, plus an annotated list of three references. For other booklets in this set, see ED 067 283, ED 067 284, ED 067 296, and SE 01[illegible] 505. (DT)

0055 ED 079 126
Kenworth, Lois
Algebra Id, Mathematics (Experimental): 5215.24.
Dade County Public Schools, Miami, Fla.
Pub Date—71
Note—30p.; An Authorized Course of Instruction for the Quinmester Program
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Algebra, Behavioral Objectives, Curriculum, Graphs, Instruction, Mathematics Education, *Objectives, *Secondary School Mathematics, *Teaching Guides, Tests
Identifiers—*Quinmester Program

This guidebook on minimum course content for beginning algebra covers graphing, the distance formula, slope, the slope-intercept form of the equation of a straight line, algebraic and graphic solutions to systems of equations, functions, and variation. Overall goals for the course are stated; performance objectives for each unit, a course outline, references to state-adopted texts, and teaching suggestions are given. A pretest and posttest are included, plus an annotated list of seven references. (DT)

0056 ED 075 216
Programmed Math Continuum, Level One, Algebra, Volume 15.
New York Inst. of Tech., Old Westbury.
Spons Agency—Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No.—BR-8-0157
Pub Date—[73]
Contract—OEC-0-8-080157-3691(010)
Note—216p.
EDRS Price - MF01/PC09 Plus Postage.
Descriptors—*Algebra, *Computer Assisted Instruction, Curriculum, Individualized Instruction, *Instruction, Instructional Materials, Mathematics Education, Programed Instruction, *Programed Instructional Materials, *Secondary School Mathematics, *Textbooks

This programed instruction study guide is one of a series that form a first-year algebra course. Structured in a multiple-choice question-answer format with scrambled pages, it is intended to be used in conjunction with a computer-managed instructional system. The following topics are covered in Volume 15: solving digit, motion, and age problems; solving problems involving fractions, rational numbers, determining roots of numbers, and irrational numbers. Reading and homework assignments are taken from the text "Modern Algebra - Book I" by Dolciani. (Related documents are SE 015 854 - SE 015 869.) (DT)

0057 ED 075 215
Programmed Math Continuum, Level One, Algebra, Volume 14.
New York Inst. of Tech., Old Westbury.
Spons Agency—Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No.—BR-8-0157
Pub Date—[73]
Contract—OEC-0-8-080157-3691(010)
Note—190p.
EDRS Price - MF01/PC08 Plus Postage.
Descriptors—*Algebra, *Computer Assisted Instruction, Curriculum, Individualized Instruction, *Instruction, Instructional Materials, Mathematics Education, Programed Instruction, *Programed Instructional Materials, *Secondary School Mathematics, *Textbooks

This programed instruction study guide is one of a series that form a first-year algebra course. Structured in a multiple-choice question-answer format with scrambled pages, it is intended to be used in conjunction with a computer-managed instructional system. The following topics are covered in Volume 14: methods of solving systems of equations, graphing pairs of inequalities, verbal problems using two variables, and determining the equation of a line. Reading and homework assignments are taken from the text "Modern Algebra - Book I" by Dolciani. (Related documents are SE 015 854 - SE 015 870.) (DT)

0058 ED 075 214
Programmed Math Continuum, Level One, Algebra, Volume 13.
New York Inst. of Tech., Old Westbury.
Spons Agency—Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No.—BR-8-0157
Pub Date—[73]
Contract—OEC-0-8-080157-3691(010)
Note—181p.
EDRS Price - MF01/PC08 Plus Postage.
Descriptors—*Algebra, *Computer Assisted Instruction, Curriculum, Individualized Instruction, *Instruction, Instructional Materials, Mathematics Education, Programed Instruction, *Programed Instructional Materials, *Secondary School Mathematics, *Textbooks

This programed instruction study guide is one of a series that form a first-year algebra course. Structured in a multiple-choice question-answer format with scrambled pages, it is intended to be used in conjunction with a computer-managed instructional system. The following topics are covered in Volume 13: open sentences in two variables, coordinates in a plane, graphing linear equations, slope of a line, slope-intercept form of an equation, graph of an inequality in two variables, and graphic solution of a system of equations. Reading and homework assignments are taken from the text "Modern Algebra - Book I" by Dolciani. (Related documents are SE 015 854 - SE 015 870.) (DT)

0059 ED 075 213
Programmed Math Continuum, Level One, Algebra, Volume 12.
New York Inst. of Tech., Old Westbury.
Spons Agency—Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No.—BR-8-0157
Pub Date—[73]
Contract—OEC-0-8-080157-3691(010)
Note—192p.
EDRS Price - MF01/PC08 Plus Postage.
Descriptors—*Algebra, *Computer Assisted Instruction, Curriculum, Individualized Instruction, *Instruction, Instructional Materials, Mathematics Education, Programed Instruction, *Programed Instructional Materials, *Secondary School Mathematics, *Textbooks

This programed instruction study guide is one of a series that form a first-year algebra course. Structured in a multiple-choice question-answer format with scrambled pages, it is intended to be used in conjunction with a computer-managed instructional system. The following topics are covered in Volume 12: solving investment, percent mixture, work, and motion problems; and solving fractional equations. Reading and homework assignments are taken from the text "Modern Algebra - Book I" by Dolciani. (Related documents are SE 015 854 - SE 015 870.) (DT)

0060 ED 075 212
Programmed Math Continuum, Level One, Algebra, Volume 11.
New York Inst. of Tech., Old Westbury.
Spons Agency—Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No.—BR-8-0157
Pub Date—[73]
Contract—OEC-0-8-080157-3691(010)
Note—210p.
EDRS Price - MF01/PC09 Plus Postage.
Descriptors—*Algebra, *Computer Assisted Instruction, Curriculum, Individualized Instruction, *Instruction, Instructional Materials, Mathematics Education, Programed Instruction, *Programed Instructional Materials, *Secondary School Mathematics, *Textbooks

This programed instruction study guide is one of a series that form a first-year algebra course. Structured in a multiple-choice question-answer format with scrambled pages, it is intended to be used in conjunction with a computer-managed instructional system. The following topics are covered in Volume 11: multiplying and dividing fractions involving factoring, combining fractions with equal and with unequal denominators, mixed expressions, complex fractions, and solving open sentences having fraction coefficients. Reading and homework assignments are taken from the text "Modern Algebra - Book I" by Dolciani. (Related documents are SE 015 854 - SE 015 870.) (DT)

0061 ED 075 211
Programmed Math Continuum, Level One, Algebra, Volume 10.
New York Inst. of Tech., Old Westbury.
Spons Agency—Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No.—BR-8-0157
Pub Date—[73]
Contract—OEC-0-8-080157-3691(010)
Note—208p.
EDRS Price - MF01/PC09 Plus Postage.
Descriptors—*Algebra, *Computer Assisted Instruction, Curriculum, Individualized Instruction, *Instruction, Instructional Materials, Mathematics Education, Programed Instruction, *Programed Instructional Materials, *Secondary School Mathematics, *Textbooks

This programed instruction study guide is one of a series that form a first-year algebra course. Structured in a multiple-choice question-answer format with scrambled pages, it is intended to be used in conjunction with a computer-managed instructional system. The following topics are covered in Volume 10: solving equations having factors whose product is zero; solving polynomial equations by factoring; use of factoring in problem solving; and reducing, multiplying, and dividing algebraic fractions. Reading and homework assignments are taken from the text "Modern Algebra - Book I" by Dolciani. (Related documents are SE 015 854 through SE 015 870.) (DT)

0062 ED 075 210
Programmed Math Continuum, Level One, Algebra, Volume 9.
New York Inst. of Tech., Old Westbury.
Spons Agency—Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No.—BR-8-0157
Pub Date—[73]
Contract—OEC-0-3-080157-3691(010)
Note—170p.
EDRS Price - MF01/PC07 Plus Postage.
Descriptors—*Algebra, *Computer Assisted Instruction, Curriculum, Individualized Instruction, *Instruction, Instructional Materials, Mathematics Education, Programed Instruction, *Programed Instructional Materials, *Secondary School Mathematics, *Textbooks

This programed instruction study guide is one of a series that form a first-year algebra course. Structured in a multiple-choice question-answer format with scrambled pages, it is intended to be used in conjunction with a computer-managed instructional system. The following topics are covered in Volume 9: factoring a trinomial square, sight multiplication of binomials, factoring the product of a binomial sum or difference, general factoring of a quadratic, and combining types of factoring. Reading and homework assignments are taken from the text "Modern Algebra - Book I" by Dolciani. (Related documents are SE 015 854 - SE 015 870.) (DT)

0063 ED 075 209
Programmed Math Continuum, Level One, Algebra, Volume 8.
New York Inst. of Tech., Old Westbury.
Spons Agency—Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No.—BR-8-0157
Pub Date—[73]
Contract—OEC-0-8-080157-3691(010)
Note—146p.
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—*Algebra, *Computer Assisted Instruction, Curriculum, Individualized Instruction, *Instruction, Instructional Materials, Mathematics Education, Programed Instruction, *Programed Instructional Materials, *Secondary School Mathematics, *Textbooks

This programed instruction study guide is one of a series that form a first-year algebra course. Structured in a multiple-choice question-answer format with scrambled pages, it is intended to be used in conjunction with a computer-managed instructional system. The following topics are covered in Volume 8: dividing a polynomial by a monomial and by a polynomial, factoring, identifying common factors, multiplying sum and difference of two numbers, factoring differences of two squares, and squaring a binomial. Reading and homework assignments are taken from the text "Modern Algebra - Book I" by Dolciani. (Related documents are SE 015 854 - SE 015 870.) (DT)

0064 ED 075 208
Programmed Math Continuum, Level One, Algebra, Volume 7.
New York State Education Dept., Albany. Bureau for Mentally Handicapped Children.
Spons Agency—Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No.—BR-8-0157
Pub Date—[73]
Contract—OEC-0-8-080157-3691(010)
Note—146p.
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—*Algebra, *Computer Assisted Instruction, Curriculum, Individualized Instruction, *Instruction, Instructional Materials, Mathematics Education, Programed Instruction, *Programed Instructional Materials, *Secondary School Mathematics, *Textbooks

This programed instruction study guide is one of a series that form a first-year algebra course. Structured in a multiple-choice question-answer format with scrambled pages, it is intended to be used in conjunction with a computer-managed instructional system. The following topics are covered in Volume 7: products and quotients of powers, multiplying polynomials by monomials and by polynomials, and problems involving area. Reading and homework assignments are taken from the text "Modern Algebra - Book I" by Dolciani. (Related documents are SE 015 854 through SE 015 870.) (DT)

0065 ED 075 207
Programmed Math Continuum, Level One, Algebra, Volume 6.
New York Inst. of Tech., Old Westbury.
Spons Agency—Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No.—BR-8-0157
Pub Date—[73]
Contract—OEC-0-8-080157-3691(010)
Note—207p.
EDRS Price - MF01/PC09 Plus Postage.
Descriptors—*Algebra, *Computer Assisted Instruction, Curriculum, Individualized Instruction, *Instruction, Instructional Materials, Mathematics Education, Programed Instruction, *Programed Instructional Materials, *Secondary School Mathematics, *Textbooks

This programed instruction study guide is one of a series that form a first-year algebra course. Structured on a multiple-choice question-answer format with scrambled pages, it is intended to be used in conjunction with a computer-managed instructional system. The following topics are covered in Volume 6: problem solving, including problems on consecutive integers, angles, uniform motion, and mixtures; and adding and subtracting polynomials. Reading and homework assignments are taken from the text "Modern Algebra - Book I" by Dolciani. (Related documents are SE 015 854 - SE 015 870.) (DT)

0066 ED 075 206
Programmed Math Continuum, Level One, Algebra, Volume 5.
New York Inst. of Tech., Old Westbury.
Spons Agency—Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No.—BR-8-0157
Pub Date—[73]
Contract—OEC-0-8-080157-3691(010)
Note—212p.
EDRS Price - MF01/PC09 Plus Postage.
Descriptors—*Algebra, *Computer Assisted Instruction, Curriculum, Individualized Instruction, *Instruction, Instructional Materials, Mathematics Education, Programed Instruction, *Programed Instructional Materials, *Secondary School Mathematics, *Textbooks

This programed instruction study guide is one of a series that form a first-year algebra course. Structured in a multiple-choice question-answer format with scrambled pages, it is intended to be used in conjunction with a computer-managed instructional system. The following topics are covered in Volume 5: operations on directed numbers, transforming equations, and properties of inequalities. Reading and homework assignments are taken from the text "Modern Algebra - Book I" by Dolciani. (Related documents are SE 015 854 - SE 015 870.) (DT)

0067 ED 075 205
Programmed Math Continuum, Level One, Algebra, Volume 4.
New York Inst. of Tech., Old Westbury.
Spons Agency—Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No.—BR-8-0157
Pub Date—[73]
Contract—OEC-0-8-080157-3691(010)
Note—209p.
EDRS Price - MF01/PC09 Plus Postage.
Descriptors—*Algebra, *Computer Assisted Instruction, Curriculum, Individualized Instruction, *Instruction, Instructional Materials, Mathematics Education, Programed Instruction, *Programed Instructional Materials, *Secondary School Mathematics, *Textbooks

This programed instruction study guide is one of a series that form a first-year algebra course. Structured in a multiple-choice question-answer format with scrambled pages, it is intended to be used in conjunction with a computer-managed instructional system. The following topics are covered in Volume 4: combining terms, equations with variables in both members, directed numbers, comparing numbers, addition on the number line, opposites, and absolute value. Reading and homework assignments are taken from the text "Modern Algebra - Book I" by Dolciani. (Related documents are SE 015 854 - SE 015 870.) (DT)

0068 ED 075 204
Programmed Math Continuum, Level One, Algebra, Volume 3.
New York Inst. of Tech., Old Westbury.
Spons Agency—Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No.—BR-8-0157
Pub Date—[73]
Contract—OEC-0-8-080157-3691(010)
Note—212p.
EDRS Price - MF01/PC09 Plus Postage.
Descriptors—*Algebra, *Computer Assisted Instruction, Curriculum, Individualized Instruction, *Instruction, Instructional Materials, Mathematics Education, Programed Instruction, *Programed Instructional Materials, *Secondary School Mathematics, *Textbooks

This programed instruction study guide is one of a series that form a first-year algebra course. Structured in a multiple-choice question-answer format with scrambled pages, it is intended to be used in conjunction with a computer-managed instructional system. The following topics are covered in Volume 3: solving problems with open sentences; axioms of equality; closure properties; commutative, associative, and distributive properties; and addition-subtraction and division-multiplication properties of equality. Reading and homework assignments are taken from the text "Modern Algebra - Book I" by Dolciani. (Related documents are SE 015 854 - SE 015 870.) (DT)

0069 ED 075 203
Programmed Math Continuum, Level One, Algebra, Volume 2.
New York Inst. of Tech., Old Westbury.
Spons Agency—Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No.—BR-8-0157
Pub Date—[73]
Contract—OEC-0-8-080157-3691(010)
Note—212p.
EDRS Price - MF01/PC09 Plus Postage.
Descriptors—*Algebra, *Computer Assisted Instruction, Curriculum, Individualized Instruction, *Instruction, Instructional Materials, Mathematics Education, Programed Instruction, *Programed Instructional Materials, *Secondary School Mathematics, *Textbooks

This programed instruction study guide is one of a series that form a first-year algebra course. Structured in a multiple-choice question-answer format with scrambled pages, it is intended to be used in conjunction with a computer-managed instructional system. The following topics are covered in Volume 2: punctuation marks; order of operations; evaluating algebraic expressions; identifying factors, coefficients, and exponents; solving open sentences; and translating verbal mathematical relationships into algebraic expressions. Reading and homework assignments are taken from the text "Modern Algebra - Book I" by Dolciani. (Related documents are SE 015 854 - SE 015 870.) (DT)

0070 ED 075 202
Programmed Math Continuum, Level One, Algebra, Volume 1.
New York Inst. of Tech., Old Westbury.
Spons Agency—Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No.—BR-8-0157
Pub Date—[73]
Contract—OEC-0-8-080157-3691(010)
Note—195p.
EDRS Price - MF01/PC08 Plus Postage.
Descriptors—*Algebra, *Computer Assisted Instruction, Curriculum, Individualized Instruction, *Instruction, Instructional Materials, Mathematics Education, Programed Instruction, *Programed Instructional Materials, *Secondary School Mathematics, *Textbooks

This programed instruction study guide is one of a series that form a first-year algebra course. Structured in a multiple-choice question-answer format with scrambled pages, it is intended to be used in conjunction with a computer-managed instructional system. Volume 1 includes general instructions for working with this system, and then covers the following topics in algebra: number line, comparing numbers, sets and set membership, and subsets. Reading and homework assignments are taken from the text "Modern Algebra - Book I" by Dolciani. (Related documents are SE 015 854 - SE 015 870.) (DT)

0071 ED 075 201
Harrigan, J. Ward
Programmed Math Continuum, Level One, Algebra, Measurable Behavioral Objectives.
New York Inst. of Tech., Old Westbury.
Spons Agency—Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No.—BR-8-0157
Pub Date—Dec 69
Contract—OEC-0-8-080157-3691(010)
Note—149p.
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—*Algebra, *Behavioral Objectives, *Computer Assisted Instruction, Curriculum, Instruction, Mathematics Education, Objectives, Programed Instruction, Programed Instructional Materials, *Secondary School Mathematics

There are two sections to this document: (1) a concept catalog which provides a simple descriptor (a single word or phrase) and number code for each student error identified in the answer matrices for the study guide, pretest, and posttest; and (2) a list of measurable behavioral objectives which give detailed and specific statements of the objectives to be taught for each of the volumes in this first-year algebra series of programed instruction study guides. (Related documents are SE 015 854 - SE 015 870.) (DT)

0072 ED 075 200
Harrigan, J. Ward
Programmed Math Continuum, Level One, Algebra, Handbook.
New York Inst. of Tech., Old Westbury.
Spons Agency—Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No.—BR-8-0157
Pub Date—Dec 69
Contract—OEC-0-8-080157-3691(010)
Note—81p.
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—*Algebra, Computer Assisted Instruction, *Curriculum, *Curriculum Guides, Instruction, Mathematics Education, Program Descriptions, *Programed Instruction, Programed Instructional Materials, *Secondary School Mathematics

This handbook was prepared to accompany a series of programed study guides for first-year algebra. It presents the rationale and development of the program; gives an itemized summary of the strategies and logistics involved in installing and operating the program as an individualized, self-paced, computer-managed course of instruction; and specifies the principles and procedures followed in creating the program. Three texts are cross-referenced to the material in this series: the core text, "Modern Algebra - Book I" by Dolciani, Berman, and Freilich; the enrichment text, "Algebra I" by Dodes and Greitzer; and the remedial text, "Comprehensive Ninth Year Mathematics" by Dressler. (Related documents are SE 015 855 - SE 015 870.) (DT)

0074 ED 069 505
Holland, Bill
Learning Activity Package, Algebra-Trigonometry.
Ninety Six High School, S. C.
Pub Date—72
Note—150p.
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—*Algebra, Curriculum, *Individualized Instruction, *Instructional Materials, Mathematics Education, Objectives, *Secondary School Mathematics, Teacher Developed Materials, Teaching Guides, *Trigonometry, Units of Study

A series of ten teacher-prepared Learning Activity Packages (LAPs) in advanced algebra and trigonometry, the units cover logic; absolute value, inequalities, exponents, and complex numbers; functions; higher degree equations and the derivative; the trigonometric function; graphs and applications of the trigonometric functions; sequences and series; permutations, combinations, and probability; descriptive statistics; and special theorems and functions. The units each contain a rationale for the material being covered; lists of behavioral objectives; a list of reading assignments, problem sets, tape recordings, and filmstrips that go with the unit; a student self-evaluation problem set, suggestions for advanced study, and references. For other documents in this series, see SE 015 193, SE 015 194, SE 015 195, and SE 015 197. (DT)

0075 ED 067 296
Strachan, Florence Hirigoyen, Hector
Algebra 1p, Mathematics: 5215.11.
Dade County Public Schools, Miami, Fla.
Pub Date—71
Note—37p.; An Authorized Course of Instruction for the Quinmester Program
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Algebra, Behavioral Objectives, *Curriculum, Instruction, Mathematics Education, *Objectives, *Secondary School Mathematics, *Teaching Guides, Tests
Identifiers—*Quinmester Program

This is the first of six guidebooks on minimum course content for first-year algebra; it introduces the language of sets, the fundamental operations and properties of the real number system, the use of variables, and the solution of simple linear equations and inequalities. Overall goals for the course are stated; then performance objectives, a unit outline, references to state-adopted texts, and teaching suggestions are concisely given for each topic. A sample pretest and posttest are included along with an annotated list of three references. See SE 014 874 and SE 014 875 for other booklets in the algebra sequence. (DT)

0076 ED 067 294
Edwards, Raymond J.
Modern Algebra, Mathematics: 5293.36.
Dade County Public Schools, Miami, Fla.
Pub Date—71
Note—34p.; An Authorized Course of Instruction for the Quinmester Program
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Behavioral Objectives, *Curriculum, Instruction, Mathematics Education, *Objectives, *Secondary School Mathematics, *Teaching Guides, Tests
Identifiers—Modern Algebra, *Quinmester Program

This guidebook covers Boolean algebra, matrices, linear transformations of the plane, characteristic values, vectors, and algebraic structures. Overall course goals and performance objectives for each unit are specified; sequencing of units and various time schedules are suggested. A sample pretest and posttest are given, and an annotated list of 14 references is included. (DT)

0077 ED 067 284
Rose, Patricia
Algebra 1s, Mathematics: 5215.14.
Dade County Public Schools, Miami, Fla.
Pub Date—71
Note—20p.; An Authorized Course of Instruction for the Quinmester Program
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—*Algebra, Behavioral Objectives, *Curriculum, Instruction, Mathematics Education, *Objectives, *Secondary School Mathematics, *Teaching Guides, Tests
Identifiers—*Quinmester Program

This is the fourth of six guidebooks on minimum course content for first-year algebra; it includes first degree equations involving absolute value, radicals, various approaches to solving quadratics, and problem solving with quadratics. After course goals are stated, a listing of performance objectives, a course outline, textbook references, and teaching suggestions are given. Pretest and posttest items are included, plus an annotated list of three references. For other booklets in the series, see SE 014 897 and SE 014 874. (DT)

0078 ED 067 283
Hirigoyen, Hector
Algebra 1Q, Mathematics: 5215.12.
Dade County Public Schools, Miami, Fla.
Pub Date—71
Note—23p.; An Authorized Course of Instruction for the Quinmester Program
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—*Algebra, Behavioral Objectives, *Curriculum, Instruction, Mathematics Education, *Objectives, *Secondary School Mathematics, *Teaching Guides, Tests
Identifiers—*Quinmester Program

This is the second of the six guidebooks on minimum course content for first-year algebra; it includes the ordered field properties of the real number system, solution of linear equations and inequalities, verbal problems, exponents and operations with polynomials. Overall goals for the course are stated; performance objectives for each unit, a course outline, references to state-adopted texts, and teaching suggestions are given. A pretest and posttest are included, plus a list of eight references. For other booklets in the algebra sequence, see SE 014 897 and SE 014 875. (DT)

0079 ED 059 088
Moore, Mary N. Rose, Patricia
Authorized Course of Instruction for the Quinmester Program, Mathematics: Survey of Algebra 1.
Dade County Public Schools, Miami, Fla.
Pub Date—71
Note—25p.
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—*Algebra, Curriculum, *Curriculum Guides, *Geometry, Instruction, Mathematics Education, Objectives, *Secondary School Mathematics, Student Evaluation, Textbooks
Identifiers—*Quinmester Program

Outlined are the minimum requirements for a quinmester course intended to strengthen a student's experience in a first algebra course, prior to entry to high school geometry and the second algebra course. After a brief description of overall goals and strategies, further details are presented in eight sections. Each section gives performance objectives, course outline, suggested strategies, and textbook references. The material covered includes rational numbers, integer exponents, polynomials, radicals, quadratic equations and systems of linear equations. Also included are an algebraic puzzle, suggested word problems, a list of vocabulary, a pretest, and a posttest - all with answers provided. (MM)

0080 ED 054 941
Historical Topics in Algebra.
National Council of Teachers of Mathematics, Inc., Washington, D.C.
Pub Date—71
Note—81p.; Reprint from Thirty-first Yearbook of the NCTM, p233-332
Available from—National Council of Teachers of Mathematics, 1201 Sixteenth Street, N.W., Washingtion, D.C. 20036 ($1.00)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Algebra, Enrichment, *History, *Instructional Materials, *Mathematical Concepts, Mathematics, *Secondary School Mathematics

This is a reprint of the historical capsules dealing with algebra from the 31st Yearbook of NCTM,"Historical Topics for the Mathematics Classroom." Included are such themes as the change from a geometric to an algebraic solution of problems, the development of algebraic symbolism, the algebraic contributions of different countries, the origin and development of topics in algebra, and the search for generality and abstract structures. (Author/JG)

0081 ED 052 960
A Self-Pacing Program in Algebra, Volume 2.
Baltimore County Public Schools, Towson, Md.; Maryland State Dept. of Education, Baltimore.
Pub Date—70
Note—372p.
EDRS Price - MF03/PC15 Plus Postage.
Descriptors—*Algebra, Curriculum Development, *Curriculum Guides, *Individualized Instruction, Individualized Programs, *Mathematics Curriculum, Mathematics Education, Mathematics Materials, *Secondary School Mathematics, Teaching Guides

This self-pacing program is the result of a cooperative curriculum development project between The Maryland Department of Education and The Baltimore County Schools. Included is a teachers guide for the use of the materials. The philosophy of this approach is that of individualization of instruction wherein the student moves at a pace commensurate with his ability and background. He studies a topic, either individually or with a small group, then he takes a test measuring mastery of that material. The test is marked "complete" or "incomplete." If he "completes" the topic unit, he proceeds to the next; if not, he does some remedial work until he "completes" the topic unit. It is suggested that written progress reports be kept for each student continuously and that grades for the course be based on number of units completed. The content of this course includes systems of linear open sentences, polynomials and factoring, rational numbers and experssions, relations and functions, real numbers, complex numbers, logarithms, progressions and the binomial expansion, probability, quadratic systems, and matrices. Also included is an extensive itemized list of behavioral objectives for each topic, student assignments for each topic, and tests and keys for each topic unit. (Author/CT)

0082 ED 052 959
A Self-Pacing Program in Algebra, Volume 1.
Baltimore County Public Schools, Towson, Md.; Maryland State Dept. of Education, Baltimore.
Pub Date—70
Note—322p.
EDRS Price - MF02/PC13 Plus Postage.
Descriptors—*Algebra, Curriculum Development, *Curriculum Guides, *Individualized Instruction, Individualized Programs, *Mathematics Curriculum, Mathematics Education, Mathematics Materials, *Secondary School Mathematics, Teaching Guides

This self-pacing program is the result of a cooperative curriculum development project between The Maryland Department of Education and The Baltimore County Schools. Included is a teachers guide for the use of the materials. The philosophy of this approach is that of individualization of instruction wherein the student moves at a pace commensurate with his ability and background. He studies a topic, either individually or with a small group, then he takes a test measuring mastery of the material. The test is marked "complete" or "incomplete." If he "completes" the topic unit, he proceeds to the next; if not, he does some remedial work until he "completes" the topic unit. It is suggested that written progress reports be kept for each student continuously and that grades for the course be based on number of units completed. The content of this course includes sets, number properties, open sentences, operations with variable expressions, functions, and graphing. Also included is an extensive itemized list of behavioral objectives for each topic, student assignment sheets for each topic, tests and keys for each topic unit. (Author/CT)

0083 ED 046 778
Unified Modern Mathematics, Course 3, Part 2.
Secondary School Mathematics Curriculum Improvement Study, New York, N.Y.
Spons Agency—Columbia Univ., New York, N.Y. Teachers College.; Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No.—BR-7-0711
Pub Date—70
Contract—OEC-1-7-070711-4420
Note—271p.
EDRS Price - MF01/PC11 Plus Postage.
Descriptors—Algebra, *Curriculum Development, Geometry, *Instructional Materials, Mathematics, *Modern Mathematics, Probability, *Secondary School Mathematics, *Textbooks, Trigonometry

The second part of Course III includes a study of probability, polynomial, rational and circular functions, and informal space geometry. The chapter on probability presents such topics as probability measure, outcome sets and events, and overview of topics studied in Courses I and II. Chapters on functions include polynomial algebra concepts and basic trigonometry. The space geometry chapter generalizes the notions of incidence, parallelism, perpendicularity, and coordinate systems to three dimensions. (FL)

0084 ED 046 777
Unified Modern Mathematics, Course 3, Part 1.
Secondary School Mathematics Curriculum Improvement Study, New York, N.Y.
Spons Agency—Columbia Univ., New York, N.Y. Teachers College.; Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No.—BR-7-0711
Pub Date—70
Contract—OEC-1-7-070711-4420
Note—233p.
EDRS Price - MF01/PC10 Plus Postage.
Descriptors—Algebra, *Curriculum Development, *Instructional Materials, Mathematics, *Modern Mathematics, Probability, *Secondary School Mathematics, *Textbooks

The first part of Course III focuses on matrix algebra, graphs and functions, and combinatorics. Topics studied include: matrices and transformations, the solution of systems of linear equations, matrix multiplication, matrix inversion and a field of 2 x 2 matrices. The section on graphs and functions considers regions of the plane and translations, functions and solution of equations, operations on functions, and bounded functions and asymptotes. The chapter on combinatorics discusses such topics as a counting principle and permutations, the binomial theorem, and mathematical induction. (FL)

0085 ED 046 776
Unified Modern Mathematics, Course 3, Teachers Commentary.
Secondary School Mathematics Curriculum Improvement Study, New York, N.Y.
Spons Agency—Columbia Univ., New York, N.Y. Teachers College.; Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No.—BR-7-0711
Pub Date—[70]
Contract—OEC-1-7-070711-4420
Note—351p.
EDRS Price - MF03 Plus Postage. PC Not Available from EDRS.
Descriptors—Course Descriptions, *Curriculum Guides, *Instruction, *Instructional Materials, Mathematics, *Secondary School Mathematics, *Teaching Guides

This commentary is to be used with "Unified Modern Mathematics, Course III." Statements of specific purposes and goals of each section of every chapter of Course III are included in the "Commentary." Also included are suggestions for teaching concepts presented in each section; time estimates for each section; suggested instructional aids for presenting various concepts; references for further study; and chapter examinations which constitute a comprehensive test for each chapter. [Not available in hardcopy due to marginal legibility of original document.] (FL)

0086 ED 041 746
Beavers, Mildred And Others
A Second Course in Algebra and Trigonometry With Computer Programming, Revised Edition.
Boulder Valley School District, Colo.; Cherry Creek School District 5, Englewood, Colo.; Jefferson County School District, Colo.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—69
Note—548p.
EDRS Price - MF06/PC22 Plus Postage.
Descriptors—*Algebra, *Computer Oriented Programs, Curriculum, Instruction, *Instructional Materials, *Mathematics Education, Secondary School Mathematics, *Trigonometry

This text is an integrated presentation of a second year course in algebra and trigonometry and digital computer modeling techniques using the programming language BASIC. Computer concepts are used directly with the mathematics throughout the text. No attempt is made to develop especially proficient programmers, but rather to present computer concepts that will make the mathematics easier to understand. Of special interest are computer programming problems involving abstract algebra, field properties, functions, polynomials, and systems of equations. (FL)

0087 ED 022 963
Rahmlow, Harold F.
Occupational Mathematics; Equivalent Forms of ABC. Report No. 16-N, Booklet II. Final Report.
Washington State Coordinating Council for Occupational Education, Olympia.; Washington State Univ., Pullman. Dept. of Education.
Spons Agency—Office of Education (DHEW), Washington, D.C.
Bureau No.—BR-7-0031
Pub Date—Jun 68
Grant—OEG-4-7-070031-1626
Note—132p.
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—*Algebra, *Arithmetic, *Fundamental Concepts, *Programed Instructional Materials, *Textbooks, *Vocational Education

This programed mathematics textbook (Volume II) is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should be able to: (1) recognize a correct equation of the type $a=bc$, where a, b, c are either letters or positive integers less than 100, (2) recognize equivalent statements of the general equation $a=bc$, when these statements are obtained by replacement, multiplication, or division, (3) select the correct method (replacement, multiplication, or division) for deriving an equivalent statement from an equation of the form $a=bc$, (4) demonstrate competency in the previous objectives by correctly answering four out of five multiple choice text items covering each objective. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909. (EM)

0088 ED 022 945
Rahmlow, Harold F. And Others
Occupational Mathematics; Solutions of ABC. Report No. 16-O. Final Report.
Washington State Coordinating Council for Occupational Education, Olympia.; Washington State Univ., Pullman. Dept. of Education.
Spons Agency—Office of Education (DHEW), Washington, D.C.
Bureau No.—BR-7-0031
Pub Date—Jun 68
Grant—OEG-4-7-070031-1626
Note—103p.
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—*Algebra, *Arithmetic, *Fundamental Concepts, *Programed Instructional Materials, *Textbooks, *Vocational Education

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should be able to solve equations of the form $a=bc$ for any one letter, given positive integral values for the other two. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975. (EM)

0089 ED 022 944
Rahmlow, Harold F. And Others
Occupational Mathematics; Equivalent Forms of ABC. Report No. 16-N. Final Report.
Washington State Coordinating Council for Occupational Education, Olympia.; Washington State Univ., Pullman. Dept. of Education.
Spons Agency—Office of Education (DHEW), Washington, D.C.
Bureau No.—BR-7-0031
Pub Date—Jun 68
Grant—OEG-4-7-070031-1626
Note—119p.
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—*Algebra, *Arithmetic, *Fundamental Concepts, *Programed Instructional Materials, *Textbooks, *Vocational Education

This programed mathematics textbook (Volume I) is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should be able to: (1) recognize a correct equation of the type $a=bc$, where a, b, c are either letters or positive integers less than 100, (2) recognize equivalent statements of the general equation $a=bc$, when these statement are obtained by replacement, multiplication, or division, (3) select the correct method (replacement, multiplication, or division) for deriving an equivalent statement from an equation of the form $a=bc$, (4) demonstrate competency in the previous objectives by correctly answering four out of five multiple choice test items covering each objective. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975. (EM)

0090 ED 018 390
GLENN, EUEL
AXIOMS, EQUATIONS, AND PROBLEM SOLVING, LEARNING ACTIVITY PACKAGE NO. 3, ALGEBRA I.
Hughson Union High School, Calif.
Report No.—DPSC-67-4401
Pub Date—JUL67
Note—41P.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Algebra, Grade 9, *Individual Instruction, *Instruction, *Instructional Materials, *Learning, *Mathematics, *Problem Solving, *Secondary School Mathematics

THIS LEARNING ACTIVITY PACKAGE (LAP) IS DESIGNED TO GUIDE STUDENTS IN LEARNING HOW TO USE AXIOMS, IN WRITING PROBLEMS INTO EQUATION FORM, AND IN SOLVING EQUATIONS. IN ORDER TO ATTAIN THESE GOALS, THE STUDENT AT SOME POINT IN HIS PROGRAM MUST BE ABLE TO (1) WRITE A DEFINITION OF "AXIOM", (2) USE THE AXIOMS OF A FIELD IN SOLVING EQUATIONS, (3) TRANSFORM A WRITTEN PROBLEM INTO AN ALGEBRAIC "SENTENCE" AND USE THE FIELD PROPERTIES TO SOLVE THE RESULTING EQUATION, AND (4) SOLVE EQUATIONS WITH A VARIABLE IN BOTH MEMBERS. PERIODIC CHECKPOINTS ARE BUILT INTO THE SYSTEM TO ENABLE THE ACCELERATED STUDENT TO BY-PASS FAMILIAR ASSIGNMENTS AND TO ENABLE THE SLOWER STUDENT TO CORRECT DEFICIENCIES. (RP)

0091 ED 018 362

AN EXPERIMENTAL COURSE IN MATHEMATICS FOR THE NINTH YEAR, UNITS 1, 2, 3, AND 4.

New York State Education Dept., Albany.
Pub Date—64
Note—123P.
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—*Algebra, *Curriculum, *Curriculum Guides, Grade 9, *Mathematics, *Secondary School Mathematics, *Set Theory, *Teaching Guides, *Teaching Methods
Identifiers—NEW YORK

THIS CURRICULUM GUIDE IS THE FIRST OF SEVERAL EXPERIMENTAL EDITIONS CONTAINING MATERIALS AND METHODS FOR TEACHING A REVISED MATHEMATICS PROGRAM IN GRADE 9. BACKGROUND MATERIAL FOR TEACHERS AS WELL AS QUESTIONS AND ACTIVITIES FOR CLASSROOM USE ARE PROVIDED IN THE CONTENT AREAS OF (1) SETS, (2) ALGEBRAIC EXPRESSIONS, (3) THE SET OF INTEGERS, AND (4) OPEN SENTENCES. (RP)

0092 ED 016 624

WARREN, LEONARD M.

INSTRUCTIONAL GUIDE FOR ALGEBRA 1, GRADES 9 TO 12.

Los Angeles City Schools, Calif.
Report No.—X-65
Pub Date—66
Note—53P.
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—*Algebra, Course Content, *Curriculum Guides, Instructional Materials, Mathematics, *Secondary School Mathematics, *Teaching Guides, Teaching Methods
Identifiers—CALIFORNIA, California (Los Angeles)

THIS INSTRUCTIONAL GUIDE WAS WRITTEN TO PROVIDE ASSISTANCE TO TEACHERS IN DEVELOPING THE BASIC CONCEPTS AND SKILLS OF ELEMENTARY ALGEBRA. THE CONTENT FOR EACH UNIT INCLUDES GOALS, A SEQUENTIAL DEVELOPMENT OF THE UNIT, AND SPECIFIC TEACHING SUGGESTIONS. THE TABLE OF CONTENTS FOR THE COURSE IS A DUPLICATION OF THE TABLE IN DOLCIANI, BERMAN, AND FREILICH'S "MODERN ALGEBRA, STRUCTURE AND METHOD," BOOK 1. AN ALTERNATE SEQUENCE USING THE TEXT, KEEDY, JAMESON, AND JOHNSON'S "EXPLORING MODERN MATHEMATICS," BOOK 3 ELEMENTARY ALGEBRA, IS PROVIDED AND RECOMMENDED FOR USE WITH HIGH-ABILITY GROUPS TO CULMINATE THE ON-GOING SEQUENCE PRESENTED IN BOOKS 1 AND 2. (RP)

0093 ED 016 618

AN EXPERIMENTAL COURSE IN MATHEMATICS FOR THE NINTH YEAR. UNITS 10 AND 11, OPEN SENTENCES IN TWO VARIABLES AND RELATIONS AND FUNCTIONS.

New York State Education Dept., Albany.
Pub Date—65
Note—83P.
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—Algebra, *Curriculum, *Curriculum Guides, Grade 9, *Mathematics, *Secondary School Mathematics, Teaching Guides, Trigonometry
Identifiers—NEW YORK

THIS TEACHING GUIDE IS THE FOURTH OF FIVE EXPERIMENTAL EDITIONS CONTAINING MATERIALS AND METHODS FOR TEACHING A REVISED MATHEMATICS PROGRAM IN GRADE 9. BACKGROUND MATERIAL FOR TEACHERS AS WELL AS QUESTIONS AND ACTIVITIES FOR CLASSROOM PRESENTATIONS ARE PROVIDED IN THE CONTENT AREAS OF (1) OPEN SENTENCES IN TWO VARIABLES (UNIT 10) AND (2) RELATIONS AND FUNCTIONS (UNIT 11). UNIT 10 INCLUDES SECTIONS ON ALGEBRAIC SOLUTIONS, SOLUTION BY GRAPHING, AND SOLUTION OF INEQUALITIES. UNIT 11 INCLUDES SECTIONS ON RELATIONS, FUNCTIONS (ALGEBRAIC AND TRIGONOMETRIC), RANGE AND DOMAIN, GRAPHING RELATIONS AND FUNCTIONS, AND SLOPE AND INTERCEPT. (RP)

0094 ED 016 617

AN EXPERIMENTAL COURSE IN MATHEMATICS FOR THE NINTH YEAR. UNITS 8 AND 9, POLYNOMIAL EXPRESSIONS AND POLYNOMIAL EQUATIONS.

New York State Education Dept., Albany.
Pub Date—65
Note—67P.
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Algebra, *Curriculum, *Curriculum Guides, Grade 9, *Mathematics, *Secondary School Mathematics, *Teaching Guides
Identifiers—NEW YORK

THIS TEACHING GUIDE IS THE THIRD OF FIVE EXPERIMENTAL EDITIONS CONCERNING MATERIALS AND METHODS FOR TEACHING A REVISED MATHEMATICS PROGRAM IN GRADE 8. BACKGROUND MATERIAL FOR TEACHERS AS WELL AS QUESTIONS AND ACTIVITIES FOR CLASSROOM PRESENTATIONS ARE PROVIDED IN THE CONTENT AREAS OF POLYNOMIAL EXPRESSIONS (UNIT 8) AND POLYNOMIAL EQUATIONS (UNIT 9). UNIT 8 CONTAINS SECTIONS ON ADDITION, SUBTRACTION, MULTIPLICATION AND DIVISION OF POLYNOMIAL EXPRESSIONS, AND FACTORING POLYNOMIAL EXPRESSIONS. UNIT 9 INCLUDES SECTIONS ON SOLUTION BY FACTORING, SOLUTION BY COMPLETING THE SQUARE, SOLUTION BY QUADRATIC FORMULA, GRAPHING QUADRATIC EQUATIONS, AND SIMPLE PROOFS. (RP)

0095 ED 016 616

NINTH YEAR MATHEMATICS. COURSE I, ALGEBRA.

New York State Education Dept., Albany.
Pub Date—65
Note—25P.
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—*Algebra, Arithmetic, *Curriculum Guides, Geometry, Grade 9, *Mathematics, *Secondary School Mathematics, *Teaching Guides, Trigonometry
Identifiers—NEW YORK

THIS GUIDE OUTLINES THE MINIMUM MATERIAL FOR WHICH STUDENTS OF NINTH YEAR MATHEMATICS - COURSE 1 - ALGEBRA WERE HELD RESPONSIBLE ON THE REGENTS EXAMINATIONS BEGINNING IN JUNE, 1966. THE REPORT ALSO PRESENTS THE SCOPE AND CONTENT OF THE ALGEBRA COURSE AND POSSIBLE SUGGESTIONS FOR TEACHING THE MATERIAL TO STUDENTS. (RP)

0096 ED 173 100

Allen, Frank B. And Others

Mathematics for High School, First Course in Algebra, Part 2. Preliminary Edition.

Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—59
Note—239p.; For related documents, see ED 135 617-618; Contains occasional light and broken type
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC10 Plus Postage.
Descriptors—*Algebra, Curriculum, *Instruction, Mathematics Education, *Number Concepts, Secondary Education, *Secondary School Mathematics, *Textbooks
Identifiers—*Polynomials, *School Mathematics Study Group

This is part two of a three-part SMSG algebra text for high school students. The principle objective of the text is to help the student develop an understanding and appreciation of some of the algebraic structure exhibited by the real number system, and the use of this structure as a basis for the techniques of algebra. Chapter topics include addition and multiplication of real numbers, subtraction and division of real numbers, factors, exponents, radicals, and polynomials and rational expressions. Moderate revisions are contained in a later edition. (MP)

APPLICATIONS

0100 ED 183 413
Wahl, Mark
Two Wheel Math: An Application Module.
Regional Center for Pre-Coll. Mathematics, Denver, Colo.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—74
Grant—NSF-GW-7720
Note—56p.; For related documents, see SE 030 304-321
Pub Type— Guides - Classroom - Learner (051) — Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—*Activities, *Bicycling, Energy, Geometric Concepts, *Learning Laboratories, *Mathematical Applications, Mathematics Curriculum, *Mathematics Instruction, Motivation, Physics, Ratios (Mathematics), Secondary Education, *Secondary School Mathematics, Worksheets

This unit is designed to be used primarily by students who have some interest in bicycles. It is intended to draw them into mathematical thinking in an interesting way. This unit is laboratory oriented. It will be necessary that the student have access to a bicycle in the classroom for several of the exercises (unless they are done primarily at home). Some of the activities should be done out on the street while riding, and they are referred to as homeplay assignments. Others are strictly pencil-and-paper exercises. Most, however, require data gathering from the bicycle. Included is a statement of many of the more obvious behavioral objectives of this module. It cannot be over-emphasized, however, that the primary objective of this unit is that the student increase his/her enthusiasm for mathematics and his/her understanding of how mathematics can give an enriching insight into ordinary things around us. (Author/MK)

0101 ED 183 404
Karlin, Marvin And Others
Sales Tax. Project Module for Use in a Mathematics Laboratory Setting.
Regional Center for Pre-Coll. Mathematics, Denver, Colo.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—73
Grant—NSF-GW-7720
Note—41p.; For related documents, see SE 030 304-322; Contains occasional light and broken type
Pub Type— Guides - Classroom - Learner (051) — Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Activities, Computation, Graphs, *Learning Laboratories, Mathematical Applications, Mathematical Formulas, Mathematics Curriculum, *Mathematics Instruction, Secondary Education, *Secondary School Mathematics, Tables (Data), *Taxes, Worksheets

This project involves devising and evaluating a sales tax schedule to meet the specific revenue needs of a hypothetical state in the United States. Conducting this unit involves many mathematical skills in a learning environment familiar to the student. The essential parts of the project consist of student preparation of a tax schedule and class participation in evaluating the proposals of others. Mathematical operations involve arithmetic computations (including computation of percent), construction of tables, formulae, rounding, graphing, and employment of random numbers. (Author/MK)

0102 ED 176 987
Cross, Judson B. And Others
Applied Mathematics: An Introductory Course.
Boston Univ., Mass. Physical Science Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—75
Grant—NSF-GZ-2892
Note—360p.; Contains occasional light type
Pub Type— Guides - Classroom - Learner (051) — Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC15 Plus Postage.
Descriptors—College Curriculum, *College Mathematics, *Computation, Higher Education, Linear Programing, *Mathematical Applications, *Mathematical Concepts, Mathematical Enrichment, Mathematical Vocabulary, *Mathematics, *Mathematics Instruction, Science Education, Set Theory, Trigonometry
Identifiers—*Functions (Mathematics)

The intent of this text is to provide students in a variety of science and technology disciplines with a basic understanding of mathematics commonly used in introductory texts in such disciplines. The first five chapters develop skills needed for efficient numerical calculation. The last five chapters examine the basic properties of elementary functions. Special emphasis is placed on finding analytical expressions from graphical representation of data. (Author/RE)

0103 ED 173 140
Junior High School Mathematics Units, Volume III, Applications. Commentary for Teachers.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—59
Note—70p.; For related documents, see SE 027 971-972; Contains occasional light and broken type
Pub Type— Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Curriculum, *Curriculum Guides, *Instruction, Junior High Schools, *Mathematical Applications, Mathematics Education, *Probability, Secondary Education, *Secondary School Mathematics, *Statistics
Identifiers—*School Mathematics Study Group

This is volume three of a three-volume set for teachers using SMSG junior high school text materials. Each unit contains a commentary on the text, answers to all the exercises, a copy of the questionnaire used for evaluating the material, and a summary of comments by the teachers using the text. Unit topics include: (1) what is mathematics; (2) the scientific seesaw; (3) statistics; and (4) chance. (MP)

0104 ED 173 109
Junior High School Mathematics Units, Volume III, Applications.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—59
Note—60p.; For related documents, see SE 027 914-915; Contains occasional light and broken type
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Curriculum, *Instruction, *Mathematical Applications, Mathematics Education, *Probability, Secondary Education, *Secondary School Mathematics, *Statistics, *Textbooks
Identifiers—*School Mathematics Study Group

This is volume three of a three-volume SMSG junior high school mathematics text. This volume includes the units concerned with applications of mathematics. Unit topics include: (1) what is mathematics and why you need to know it; (2) mathematics at work in science; (3) Uncle Sam as a statistician; and (4) chance. (MP)

0105 ED 167 389
Avenoso, Frank J. And Others
Mathematics Lessons That Live. The MATYC Journal/ERIC Monograph Series.
ERIC Information Analysis Center for Science, Mathematics, and Environmental Education, Columbus, Ohio.; Nassau Community Coll., Garden City, N.Y. Dept. of Mathematics and Computer Processing.
Pub Date—78
Note—63p.
Available from—The MATYC Journal, Dept. of Mathematics and Computer Processing, Nassau Community College, Stewart Avenue, Garden City, New York 11530 ($3.75)
Pub Type— Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Consumer Education, Geometry, Higher Education, Instruction, *Mathematical Applications, *Mathematical Enrichment, *Mathematics, *Mathematics Education, Probability, Secondary Education, Set Theory, Statistics, *Student Projects
Identifiers—Information Analysis Products

Several highly motivating lessons particularly pertinent to the study of mathematics in high schools and the first years of college are presented. These lessons fall into four categories: (1) problems that present a challenge and which are interesting for their own sake; (2) problems based on real situations that can be understood by the student; (3) puzzles and mathematical games; and (4) project-oriented mathematics. Included are notions from graph theory, geometry, number theory, logic, probability, statistics, consumer mathematics, and set theory. (MP)

0106 ED 164 816
Heppa, Victor
Math for Masons. (Revised).
Bergen County Vocational-Technical High School, Hackensack, N.J.; Rutgers, The State Univ., New Brunswick, N.J. Curriculum Lab.
Spons Agency—New Jersey State Dept. of Education, Trenton. Div. of Vocational Education.
Pub Date—78
Note—167p.
Available from—New Jersey Vocational-Technical Curriculum Laboratory, Building 4103, Kilmer Campus, Rutgers University, New Brunswick, New Jersey 08903 ($5.25, plus postage)
Pub Type— Guides - General (050)
EDRS Price - MF01/PC07 Plus Postage.
Descriptors—Arithmetic, *Bricklayers, *Computation, Decimal Fractions, Fractions, *Individualized Instruction, Learning Modules, *Masonry, *Mathematics Instruction, Mathematics Materials, Measurement, Performance Tests, *Problem Sets, Secondary Education, Trade and Industrial Education

This student manual is concerned with the practical application of mathematics as used by masons. The manual's design allows students to work at their own pace. Included in each of the five units are individual lesson sheets with written instructions and explanations. Each information sheet states that topic's objectives, information about the topic, examples of procedures, and problems for the student to solve. Unit 1, decimal fractions, contains problems in addition, subtraction, multiplication, division, decimals on the electronic calculator, percents to decimals, fraction equivalents, and multiplication and divison by percents. Unit 2 contains problems on rounding off numbers. Unit 3, fractions, contains problems in addition, adding fractions on the calculator, dimensions-addition, adding dimensions on the calculator, converting fractional part of a foot to inches, subtraction of fractional dimensions, subtraction of dimensions on the calculator, and multiplication and division of fractions. Unit 4, square measure, contains problems concerning areas and perimeters of squares, rectangles, triangles, and circles; areas of walls and ceilings; and areas of solid geometric figures. Unit 5, cubic measure, contains problems in computing volumes of cubes, rectangular prisms, and walls; quantities of materials (brick, mortar, stone); footings; volumes of cylinders and triangular prisms; and the cubic yards of concrete floors, walks, and patios. Unit tests are provided at the end of the manual (answers are not provided). (CT)

0107 ED 162 874
Bell, Max S., Ed.
Studies in Mathematics, Volume XVI. Some Uses of Mathematics: A Source Book for Teachers and Students of School Mathematics.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—67
Note—252p.; For related documents, see SE 025 371-375 and ED 143 544-557; Contains numerous copyrighted articles
Available from—ERIC Clearinghouse for Science, Mathematics & Environmental Ed., The Ohio State Univ., 1200 Chambers Rd., 3rd Floor, Columbus, OH 43212 (on loan)
Pub Type— Books (010)
Document Not Available from EDRS.
Descriptors—Curriculum, Instruction, *Instructional Materials, *Mathematical Applications, *Mathematical Models, Mathematics Education, *Resource Materials, Secondary Education, *Secondary School Mathematics
Identifiers—*School Mathematics Study Group

This is a collection of articles dealing with mathematical applications for use by high school teachers and students. The articles are intended to illustrate several themes: (1) how mathematics is applied via construction of mathematical models; (2) the various types of activities in applied mathematics; (3) the role of pure mathematics in applied mathematics; and (4) a number of specific examples illustrating the nature of applications of mathematics in a variety of fields. Chapter topics include: (1) mathematics and social policy; (2) mathematics in the natural sciences; (3) computers; (4) elections; (5) *geometry; (6) orbiting; (7) crytography; (8) nuclear* energy; (9) space age; (10) capital budgeting; (11) decision models; (12) social sciences; (13) psychology; (14) chemistry; (15) neural networks; (16) queueing; (17) the birthday problem; and (18) bridge. (MP)

0108 ED 161 756

Case Studies in Applied Mathematics.

Mathematical Association of America, Washington, D.C.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—76

Note—438p.; Pages 326-343 removed due to copyright restrictions; Not available in hard copy due to marginal legibility of original document

Available from—The Mathematical Association of America, 1529 Eighteenth St., N.W., Washington, D.C. 20036 (no price quoted)

Pub Type— Books (010)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Behavior Patterns, *College Mathematics, Communicable Diseases. Computers, Ecology, Heat, Higher Education, *Instruction, *Mathematical Applications, *Mathematical Models, Political Power, Population Trends, Power Technology, Statistics, *Teaching Guides

Identifiers—*Committee on the Undergraduate Program in Math

This collection of nine case studies in applied mathematics was written primarily for the use of the instructor by a Conference sponsored by the Committee on the Undergraduate Program in Mathematics (CUPM). Each chapter contains exercises of varying degrees of difficulty and several include student projects. The materials were used on a trial basis and the results of these experiences are reported. The first chapter discusses the process of applied mathematics. The case studies are: (1) measuring power in weighted voting systems; (2) a model for municipal street-sweeping operations; (3) a mathematical model of renewable resources; (4) some examples of mathematical models for the dynamics of several-species ecosystems; (5) population mathematics; (6) MacDonald's work on Helminth Infections; (7) modeling linear systems by frequency response methods; (8) network analysis of steam generator flow; and (9) heat transfer in frozen soil. (MP)

0109 ED 143 557

Bell, Max S.

Studies in Mathematics, Volume XX. Mathematical Uses and Models in our Everyday World.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—72

Note—161p.; For related documents, see SE 023 028-040; Contains numerous light type

Pub Type— Books (010)

EDRS Price - MF01/PC07 Plus Postage.

Descriptors—Arithmetic, Elementary Education, Elementary School Mathematics, *Instructional Materials, *Mathematical Applications, *Mathematical Models, Secondary Education, *Secondary School Mathematics, *Textbooks

Identifiers—*School Mathematics Study Group

This book is intended as a demonstration that a variety of interesting problems suitable for use in the school mathematics experience of everyperson can be fabricated from available sources. It is intended to be illustrative rather than exhaustive. The problems in the book are intended to be accessible to children by the middle school years. The expository sections may be difficult for middle school students. The underlying idea throughout the book is that of mathematical models. Chapters included in the book are: (1) Uses of Numbers for Description and Identification; (2) Uses of Pairs or Triples of Numbers; (3) The Role of Measures in Application; (4) Formulas as Mathematical Models; and (5) Examples of Problem Collection Themes. A selected bibliography concludes the book. (RH)

0110 ED 143 551

Schiffer, Max M.

Studies in Mathematics, Volume X. Applied Mathematics in the High School.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—63

Note—157p.; For related documents, see SE 023 028-041; Contains numerous light type

Pub Type— Books (010)

EDRS Price - MF01/PC07 Plus Postage.

Descriptors—*Algebra, Geometry, Instructional Materials, *Mathematical Applications, Mathematics, Optics, *Physical Sciences, *Secondary School Mathematics, *Teaching Guides

Identifiers—*School Mathematics Study Group

This publication contains a sequence of lectures given to high school mathematics teachers by the author. Applications of mathematics emphasized are elementary algebra, geometry, and matrix algebra. Included are: (1) an introduction concerning teaching applications of mathematics; (2) Chapter 1: Mechanics for the High School Student; (3) Chapter 2: Growth Functions; (4) Chapter 3: The Role of Mathematics in Optics; (5) Chapter 4: Application of Matrix Algebra. Included in each chapter are background materials, examples, some teaching suggestions, and some exercises. (RH)

0111 ED 123 065

Cosler, Norma, Ed.

Applied Math Problems in Agriculture. Oregon Vo-Tech Mathematics Problem Sets.

Oregon Math Education Council, Salem.; Oregon State Dept. of Education, Salem. Career and Vocational Education Section.

Pub Date—74

Note—97p.; For related documents, see SE 020 628-648

Available from—Continuing Education Publications, P.O. Box 1491, Portland, Oregon 97207

Pub Type— Guides - General (050)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—*Agriculture, Algebra, Geometry, Individualized Instruction, *Instructional Materials, Mathematical Applications, Mathematics Education, Number Concepts, *Problem Sets, Secondary Education, *Secondary School Mathematics, Trigonometry, *Vocational Education

Identifiers—*Oregon Vo Tech Math Project

This booklet, developed by the Oregon Vo-Tech Math Project, contains a series of mathematical problems related to vocations in agriculture. The mathematical topics on which problems are based include whole numbers; fractions; decimals; percent; use of formulas; charts and graphs; ratio and proportion; solution of equations; perimeter, area, and volume; right angle trigonometry; and logarithms. Solutions are provided for all problems. (SD)

0112 ED 122 030

Mathematics. Unit 6: A Core Curriculum of Related Instruction for Apprentices.

New York State Education Dept., Albany. Bureau of Occupational and Career Curriculum Development.

Pub Date—76

Note—38p.; For related documents, see CE 006 872-876

Pub Type— Guides - General (050)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—*Curriculum Guides, Educational Objectives, *Mathematics Education, Mathematics Instruction, Postsecondary Education, Resource Materials, *Teaching Guides, *Unit Plan

The mathematics unit is presented to assist apprentices to acquire a general knowledge of mathematic skills. The unit consists of nine modules: (1) basic addition, subtraction, multiplication, and division; (2) conventional linear measure; (3) using the metric system, (4) steps to take in solving problems, (5) how to calculate areas and volumes, (6) basic principles of algebra, (7) finance–how to compute wages, payroll deductions, interest rates, and business expenses, (8) statistics and graphs, and (9) how to use the slide rule. Each module contains information on the following areas: objectives, references (textbooks), content, instructional suggestions, and background information. (EC)

0113 ED 120 553

Bogdany, Melvin

Mathematics for the Baker.

Rutgers, The State Univ., New Brunswick, N.J. Curriculum Lab.

Spons Agency—New Jersey State Dept. of Education, Trenton. Div. of Vocational Education.

Report No.—VT-102-626

Pub Date—Jan 76

Note—190p.

Available from—New Jersey Vocational-Technical Curriculum Laboratory, Rutgers-The State University, Building 4103 Kilmer Campus, New Brunswick, New Jersey 08903 (Catalog Number BA-339, $3.50)

Pub Type— Books (010)

EDRS Price - MF01/PC08 Plus Postage.

Descriptors—Career Development, *Curriculum Guides, *Food Service Occupations, *Instructional Materials, Job Skills, Learning Activities, *Mathematical Applications, Mathematics, Mathematics Instruction, Mathematics Materials, Money Management, Secondary Education, *Secondary School Mathematics, Study Guides, Vocational Education

Identifiers—*Bakers

The curriculum guide offers a course of training in the fundamentals of mathematics as applied to baking. Problems specifically related to the baking trade are included to maintain a practical orientation. The course is designed to help the student develop proficiency in the basic computation of whole numbers, fractions, decimals, percentage, ratio and proportion, converting formulas, and costing formulas. Material is also included to increase mathematical skills in weights and measures, pricing and selling, purchasing of raw materials, handling cash, and wages and hours. (Author/NJ)

0114 ED 112 088

Picot, Donald

Applied Mathematics–Machine Shop; A Teachers Guide.

Rutgers, The State Univ., New Brunswick, N.J. Curriculum Lab.

Spons Agency—New Jersey State Dept. of Education, Trenton. Div. of Vocational Education.

Note—97p.

Pub Type— Guides - General (050)

EDRS Price - MF01/PC04 Plus Postage.

Descriptors—Assignments, *Curriculum Guides, *Individualized Instruction, Instructional Materials, Lesson Plans, *Machinists, Mathematical Applications, *Mathematics, Mathematics Instruction, Mathematics Materials, Postsecondary Education, Secondary Education, Tests, Trade and Industrial Education, Unit Plan

The outline of mathematics skills provides for individualized instruction by allowing each student to complete performance tests which indicate the point at which his instruction should start. The course is divided into two parts; one covering operations with whole numbers, decimals, fractions, and percentage; the other dealing with ratio, proportion, square roots, fundamental geometry, and trigonometry with practical applications. The skills in part one are prerequisite to successful completion of part two which meets the performance requirements of the second class machinist classification. The outline contains lists of texts for both parts on which the skills and assignments are based and a pretest for proficiency credit for part one. The course is structured in units (13 in part one, 10 in part two) which are divided into lessons. For each lesson specific performance objectives with corresponding assignments from the texts are indicated. Quizzes for some lessons and tests for each unit (actual forms) are included. An evaluation form for each unit has space for lesson, quiz, and unit test grades and a percentage formula for using these three types of scores in tabulating a final grade. (MS)

0115 ED 111 982

Mundell, Scott

Construction Industry Related Mathematics: Seventh Grade.

Arizona State Dept. of Education, Phoenix.

Pub Date—75

Note—29p.; For related documents, see CE 004 714-727

Pub Type— Guides - General (050)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—*Career Education, *Construction Industry, Grade 7, Instructional Materials, Job Skills, Junior High Schools, Learning Activities, *Mathematical Applications, *Mathematics Instruction, Teacher Developed Materials, *Teaching Guides

The field tested construction industry-related mathematics unit is intended to familiarize seventh grade students with various facets of the construction industry, including the various occupations available and the mathematical abilities and other skills and training necessary to pursue an occupation in the industry. The final set of activities of the unit gives students an opportunity to plan a house and to compute the approximate cost of their "dream house." Opportunity is also provided for the students to work with various construction industry-related mathematics problems. The unit takes 15 hours of teaching time and includes whole class, small group, and individual activities. Four performance objectives are presented, with suggestions for accompanying learning activities, student evaluation, and enrichment activities. Half of the document consists of various student worksheets and a media and resource list. (Author/BF)

0116 ED 110 717

Hale, Guy J. And Others

Modern Mathematics as Applied to Machine Trades: Volumes 1 and 2.

Indiana State Univ., Terre Haute. Dept. of Vocational-Technical Education.

Spons Agency—Indiana State Dept. of Public Instruction, Indianapolis. Div. of Vocational Education.

Pub Date—73

Note—642p.

Pub Type— Guides - General (050)

EDRS Price - MF03/PC26 Plus Postage.

Descriptors—*Curriculum Guides, *Instructional Materials, Machinery Industry, *Machine Tool Operators, Machine Tools, Machinists, Mathematical Applications, Mathematical Concepts, Mathematical Vocabulary, *Mathematics Instruction, Mathematics Materials, Modern Mathematics, Research Projects, Secondary Education, Teaching Methods, Technical Education, *Technical Mathematics, Technology, Trade and Industrial Education, Worksheets

Through a research grant funded by the Vocational Division of the Indiana State Department of Public Instruction, a developmental research project was undertaken to develop machine trades-related mathematics materials using the terminology, concepts, and methods of modern mathematics. The two volume set is designed to be utilized by first and second year machine tool technology students. Included in the document are technical information lead-in sheets, machine trades technical information sheets, technical assignment sheets, sample technical operation sheets, and sample technical job sheets. The technical information lead-in sheets present, in simple and direct manner, important terminology, concepts, and methods utilized in modern mathematics. The units may be used for both practice and reference; practice problems with answers are divided with each lead-in sheet. Each of the machine trades technical information sheets presents specific machine tool technology, technical information utilizing the modern mathematics approach, and terminology. As much as possible these units emphasize understanding of the concepts and formulas involved. Technical assignment sheets including assigned problems and answers have been included to provide the student with practice. Appended is a partial listing of books that might be utilized for additional study in the machine trades and in modern mathematics. (Author/BP)

0117 ED 097 498

Math for Electronics; Industrial Electronics 1: 9323.04.

Dade County Public Schools, Miami, Fla.

Pub Date—May 73

Note—16p.; An Authorized Course of Instruction for the Quinmester Program

Pub Type— Guides - General (050)

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—Appliance Repairers, Course Content, Course Objectives, *Curriculum Guides, *Electrical Occupations, *Electronics, *Mathematics, Postsecondary Education, Secondary Education, *Technical Education

Identifiers—Florida, *Quinmester Program

This curriculum guide is designed for the student interested in preparing for vocational electronics and related fields of electricity, emphasizing the mathematics necessary for an indepth study of electronics. Included in the course content are goals, specific block objectives, basic algebra, powers of 10, the slide rule, basic trigonometry related to vector analysis, and logarithms. Posttest samples and a bibliography are included. (NH)

0118 ED 085 261

Catterton, Gene And Others

Relevant Mathematics.

Wynne Public Schools, Ark.

Spons Agency—Arkansas State Dept. of Education, Little Rock.; Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.

Pub Date—72

Note—492p.; Revised Summer 1973

EDRS Price - MF02/PC20 Plus Postage.

Descriptors—Business Skills, Curriculum, Instruction, *Instructional Materials, *Mathematical Applications, Percentage, Problem Sets, Problem Solving, Relevance (Education), Resource Materials, *Secondary School Mathematics, *Worksheets

Identifiers—Elementary Secondary Education Act Title III

This material was developed to be used with the non college-bound student in the senior high school. It provides the student with everyday problems and experiences in which practical mathematical applications are made. The package includes worksheets pertaining to letterhead invoices, sales slips, payroll sheets, inventory sheets, carpentry and other construction project plans, and other realistic applications of practical, relevant mathematics. (JP)

0119 ED 054 927

Mahan, Jerrold William

How Far a Star. A Supplement in Space Oriented Concepts for Science and Mathematics Curricula for Intermediate Grades.

National Aeronautics and Space Administration, Washington, D.C.

Spons Agency—Office of Education (DHEW), Washington, D.C.

Pub Date—69

Note—112p.

EDRS Price - MF01/PC05 Plus Postage.

Descriptors—*Aerospace Technology, *Astronomy, Instructional Materials, *Intermediate Grades, *Mathematics, Measurement, Resource Materials, *Science Activities, Scientific Principles

Space science-oriented concepts and suggested activities are presented for intermediate grade teachers of science and mathematics in a book designed to help bring applications of space-oriented mathematics into the classroom. Concepts and activities are considered in these areas: methods of keeping time (historically); measurement as related to time, distance, and astronomy, including lunar photographs and measurement activities; communication in space, sound, and satellites; measuring the atmosphere; and measuring and interpreting the light from stars. A glossary of space terms, an aerospace bibliography, and a subject index are included. (PR)

0120 ED 048 216

Technical Subjects. Mathematics. Science. Curriculum RP-27.

Ontario Dept. of Education, Toronto.

Note—273p.

EDRS Price - MF01/PC11 Plus Postage.

Descriptors—Air Conditioning, Auto Mechanics, Building Trades, *Curriculum Guides, Drafting, Grade 9, Grade 10, Grade 11, Grade 12, Plumbing, *Secondary Education, *Trade and Industrial Education, Welding, Woodworking

GRADES OR AGES: Grades 9-12. SUBJECT MATTER: Technical subjects and special mathematics and science courses for technical students. Technical subjects include air conditioning, auto mechanics, carpentry, drafting, applied electronics, masonry, painting, plumbing, service station operation, welding, and woodworking. ORGANIZATION AND PHYSICAL APPEARANCE: The guide is divided into three main sections, one each for a 5-year program, a 4-year program, and a 2-year program. Each section contains course outlines for from 8 to 22 courses. The guide is xeroxed and perfect bound with a paper cover. OBJECTIVES AND ACTIVITIES: No specific objectives or activities are mentioned. Most units simply list in detail topics to be covered with suggestions for timing. INSTRUCTIONAL MATERIALS: No mention. STUDENT ASSESSMENT: No mention. (RT)

CALCULATORS/COMPUTERS

0200 ED 176 986
Beavers, Mildred And Others
A Course in Algebra and Trigonometry with Computer Programming.
Colorado Univ., Boulder.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—May 75
Grant—NSF-GJ-00146
Note—563p.; Not available in hard copy due to marginal legibility of original document
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF02 Plus Postage. PC Not Available from EDRS.
Descriptors—*Algebra, Algorithms, *College Mathematics, Computer Oriented Programs, Curriculum Development, Flow Charts, Higher Education, Mathematics Curriculum, Mathematics Education, Mathematics Instruction, *Programing, Secondary Education, *Secondary School Mathematics, Teaching Methods, *Textbooks, *Trigonometry
Identifiers—Colorado Schools Computing Science

This textbook was developed by the Colorado Schools Computing Science (CSCS) Curriculum Development Project. It can be used with high school or college students in an integrated presentation of second-year algebra, trigonometry, and beginning computer programing. (MK)

0201 ED 175 705
Study Guide in Digital Computing and Related Mathematics.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—64
Note—17p.
Pub Type— Reference Materials (130)
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—*Algorithms, Bibliographies, *Computers, Computer Science, Curriculum, Higher Education, Inservice Education, *Instruction, Mathematical Applications, *Mathematics Education, *Problem Solving, Secondary Education, Secondary School Mathematics, *Study Guides
Identifiers—*School Mathematics Study Group

This SMSG study guide is designed to aid the teacher in acquiring familiarity with digital computer concepts or to further his/her knowledge of the field. Suitable references for important topics are categorized as central, peripheral, or advanced. Topics covered include: (1) nature and organization of computers; (2) problem analysis; (3) algorithmic language; (4) additional sources of problems; (5) mathematics of computation; (6) applications of computer systems; (7) computer operation; and (8) non-technical views of the computer field. (MP)

0202 ED 175 628
Schoen, Harold L.
Calculators in Mathematics - How Should They Be Used.
Pub Date—Apr 79
Note—22p.; Paper presented at the annual meeting of the American Educational Research Association (San Francisco, California, April 8-12, 1979); Contains occasional light and broken type
Pub Type— Speeches/Meeting Papers (150)
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—*Calculators, Conference Reports, *Educational Research, Elementary Education, *Elementary School Mathematics, *Learning Activities, Mathematical Concepts, *Mathematics Curriculum, Mathematics Education, *Mathematics Instruction, Problem Solving, Worksheets
Identifiers—*American Educational Research Association

This paper was presented at the 1979 meeting of the American Educational Research Association (AERA) in San Francisco. It describes specific examples of calculator-aided mathematics learning activities for children in grades 2-6. These examples illustrate a variety of topics and types of learning which can be enhanced by a range of capabilities of a four-function calculator. Activity sheets and explanations of their uses are included. The activities are categorized by their instructional goals, and are designed to teach counting and numeration, basic facts, some selected number concepts, estimation, and problem solving. A discussion of the role of the calculator in mathematics learning as illustrated by the sample activities is also presented. (HM)

0203 ED 171 574
Suydam, Marilyn N., Ed.
Information Bulletins from the Calculator Information Center. Bulletins 1-7.
Ohio State Univ., Columbus. Calculator Information Center.
Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Pub Date—79
Note—30p.
Pub Type— Guides - General (050) — Guides - Non-Classroom (055)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Administrator Education, *Calculators, *Elementary School Mathematics, Elementary Secondary Education, *Instructional Materials, *Mathematics Instruction, *Secondary School Mathematics, *Teacher Workshops, Technology
Identifiers—Classroom Use

Presented are seven Information Bulletins from the Calculator Information Center. Each addresses concerns that have arisen as teachers consider the use of calculators or begin to use calculators. Bulletin No. 1, prepared by Higgins, discusses "Types of Calculators." The second bulletin, compiled by Channell, presents some suggested activities for secondary school teachers. The third bulletin is a compilation of "Suggestions for Calculator Selection" at the elementary school level. Fourth is an information bulletin for administrators, prepared by Jones and Bosley. Bulletin No. 5, developed by Gawronski, is on "Leading a Calculator Workshop." The sixth bulletin, prepared by Denman, contains suggestions for using calculators in grades 1-3, while the seventh bulletin, developed by Immerzeel and Ockenga, presents activities for using calculators in grades 4-6. (MS)

0204 ED 171 573
Suydam, Marilyn N.
The Use of Calculators in Pre-College Education: A State-of-the-Art Review.
Ohio State Univ., Columbus. Calculator Information Center.
Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Pub Date—79
Note—21p.
Pub Type— Information Analyses (070)
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—*Calculators, *Educational Change, Elementary Secondary Education, Instructional Materials, *Mathematics Education, *Mathematics Instruction, *Research Reviews (Publications), *State of the Art Reviews

This document actually consists of two state-of-the-art reviews on the use of calculators in education, one prepared in April 1978 and the second in May 1979. Each presents a concise summary of current status, with sections elaborating on the extent of use of calculators in schools, research on calculator effects, the development of instructional materials, and continuing concerns for research and development effort. References are included. (MS)

0205 ED 171 572
Suydam, Marilyn N.
Calculators: A Categorized Compilation of References.
Calculator Information Center, Columbus, Ohio.
Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Pub Date—Jun 79
Contract—400-79-0025
Note—188p.; For related document, see SE 026 880; Contains occasional light type
Pub Type— Reference Materials - Bibliographies (131)
EDRS Price - MF01/PC08 Plus Postage.
Descriptors—*Annotated Bibliographies, *Calculators, Computation, Educational Change, Instructional Materials, Literature Reviews, Mathematics Curriculum, *Mathematics Education, Mathematics Instruction, Research, *Resource Materials, Teaching Methods
Identifiers—*National Institute of Education

This document consists of a list of the references on calculators which were collected by the Calculator Information Center prior to June 1979. Included are references which previously appeared on bulletins distributed by the Center, plus articles from newsletters and similar less readily available sources and from non-American sources. Most references are annotated; all include a limited set of descriptors or keywords which denote the focus or contents of the reference. At the end of the listing is an index for each descriptor. (MS)

0206 ED 167 426
Suydam, Marilyn N., Comp.
Reference Bulletins from the Calculator Information Center.
Calculator Information Center, Columbus, Ohio.
Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Pub Date—Apr 79
Contract—400-77-0030
Note—90p.; Contains occasional light and broken type
Pub Type— Reference Materials - Bibliographies (131)
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—Annotated Bibliographies, *Bibliographies, *Calculators, *Computation, Elementary Secondary Education, *Instruction, Literature Reviews, *Mathematics Education, Postsecondary Education, *Research Reviews (Publications)

These 18 bulletins list references on the uses of calculators pertinent to education. They were published at intervals to provide teachers and other interested persons with sources of information about calculator activities and research findings. The bulletins focus on several categories of references: (1) articles on instruction with hand-held calculators; (2) books on calculator applications; (3) research on hand-held calculators; (4) references on calculators at the post-secondary level; (5) references on desk calculators; (6) articles on the pros and cons of using hand-held calculators; and (7) articles on selecting a calculator. Most of the bulletins contain annotations; several include an introductory synthesis. (Author)

0207 ED 161 758
Calculator Handbook. Problem Solving Project.
Pub Date—75
Note—39p.; For related documents, see SE 025 249-251; Contains occasional light and broken type
Pub Type— Books (010)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Calculators, *Computation, Elementary Education, *Elementary School Mathematics, Instruction, *Instructional Materials, *Learning Activities, Pattern Recognition, *Problem Sets, *Problem Solving
Identifiers—Estimation (Mathematics), Number Operations

These student worksheets include activities in counting, place value, estimation, the four operations with whole numbers, number patterns, volume, inequalities, decimal equivalents of fractions, and percents, all to be worked with a calculator. (MP)

0208 ED 161 757
Getting to Know the Calculator. Problem Solving Project.
Northern Iowa Univ., Cedar Falls. Mathematics Learning Center.
Pub Date—75
Note—27p.; For related documents, see SE 025 250-251; Not available in hard copy due to marginal legibility of original document
Available from—The Director, Mathematics Learning Center, University of Northern Iowa, Cedar Falls, Iowa 50613 (no price quoted)
Pub Type— Reports - Research (143)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Calculators, *Computation, Elementary Education, *Elementary School Mathematics, Instruction, *Instructional Materials, *Learning Activities, Mathematical Formulas, Pattern Recognition, *Problem Sets, *Problem Solving
Identifiers—Estimation (Mathematics), Number Operations

Many problems and activities which can be worked with a calculator are contained in this booklet. The problems include: pattern recognition, combinations of operations, estimation, squares and square roots, rate problems, area, and volume. Chapter topics include: getting to know the calculator, single-step problems, using formulas, and multiple-step problems. (MP)

0209 ED 146 009
Humphreys, Casey And Others
Calculator Cookery.
Minneapolis Public Schools, Minn.
Pub Date—[77]
Note—110p.; Contains occasional colored pages which may not reproduce well
Pub Type— Guides - General (050)
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—*Calculators, Consumer Education, Curriculum, Elementary Secondary Education, *Instructional Materials, *Learning Activities, Mathematical Applications, Mathematics Education, *Number Concepts, *Secondary School Mathematics, *Teacher Developed Materials, Worksheets

This valuable collection of materials was developed to incorporate the calculator as an instructional aid in ninth- and tenth-grade general and basic mathematics classes. The materials are also appropriate for grades 7 and 8. After an introductory section which teaches the use of the calculator, four games and activities are described. For these and subsequent lessons, prior knowledge needed, objectives, materials, and directions are clearly stated. The third set of lessons is on exploring algorithms, with multiplication by tens, hundreds, and thousands considered. Pattern searches comprise several lessons; estimation, calculating in circles, consumer applications, and environmental applications are the focus of remaining sets of lessons. An annotated list of references is also included. All materials are in a form ready to be used by teacher and copied for students. (MS)

0210 ED 143 511
Charp, Sylvia And Others
Algorithms, Computation and Mathematics (Fortran Supplement). Teacher's Commentary. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—66
Note—104p.; For related documents, see SE 022 983-987; Not available in hard copy due to marginal legibility of original document
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Algorithms, *Computers, *Mathematics Education, Programing Languages, Secondary Education, *Secondary School Mathematics, *Teaching Guides
Identifiers—*FORTRAN Programing Language, *School Mathematics Study Group

This is the teacher's guide and commentary for the SMSG textbook Algorithms, Computation, and Mathematics (Fortran Supplement). The teacher's commentary provides background information for the teacher, suggestions for activities found in the Fortran Supplement, and answers for exercises and activities. The course is designed for high school students in grades 11 and 12. Access to a computer is highly recommended. (RH)

0211 ED 143 510
Charp, Sylvia And Others
Algorithms, Computation and Mathematics (Fortran Supplement). Student Text. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—66
Note—137p.; For related documents, see SE 022 983-988; Not available in hard copy due to marginal legibility of original document
Pub Type— Books (010)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Algorithms, *Computers, *Instructional Materials, *Programing Languages, Secondary Education, *Secondary School Mathematics, *Textbooks
Identifiers—*FORTRAN Programing Language, *School Mathematics Study Group

This is the student's textbook for Algorithms, Computation, and Mathematics (Fortran Supplement). This computer language supplement is split off from the main text to enable a school to choose the computer language desired, and also to make it easier to modify the course as languages change. The chapters in the text are designed to add language capability. Each can be read in conjunction with the main text, section by section. (RH)

0212 ED 143 509
Charp, Sylvia And Others
Algorithms, Computation and Mathematics (Algol Supplement). Teacher's Commentary. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—66
Note—113p.; For related documents, see SE 022 983-988; Not available in hard copy due to marginal legibility of original document
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Algorithms, *Computers, *Mathematics Education, *Programing Languages, Secondary Education, *Secondary School Mathematics, *Teaching Guides
Identifiers—*ALGOL Programing Languages, *School Mathematics Study Group

This is the teacher's guide and commentary for the SMSG textbook Algorithms, Computation and Mathematics (Algol Supplement). This teacher's commentary provides background information for the teacher, suggestions for activities found in the student's Algol Supplement, and answers to exercises and activities. The course is designed for high school students in grades 11 and 12. Access to a computer is highly recommended. (RH)

0213 ED 143 508
Charp, Sylvia And Others
Algorithms, Computation and Mathematics (Algol Supplement). Student Text. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—66
Note—138p.; For related documents, see SE 022 983-988; Not available in hard copy due to marginal legibility of original document
Pub Type— Books (010)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Algorithms, *Computers, *Instructional Materials, *Programing Languages, Secondary Education, *Secondary School Mathematics, *Textbooks
Identifiers—*ALGOL Programing Languages, *School Mathematics Study Group

This is the student's textbook for Algorithms, Computation, and Mathematics (Algol Supplement). This computer language supplement is split off from the main text to enable a school to choose the computer language desired, and also to make it easier to modify the course as languages change. The chapters in the text are designed to add language capability. Each can be read in conjunction with the main text section by section. (RH)

0214 ED 143 507
Charp, Sylvia And Others
Algorithms, Computation and Mathematics. Teacher's Commentary. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—66
Note—302p.; For related documents, see SE 022 983-988; Not available in hard copy due to marginal legibility of original document
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Algorithms, *Computers, *Instructional Materials, Mathematics Education, Programing Languages, Secondary Education, *Secondary School Mathematics, *Teaching Guides
Identifiers—*School Mathematics Study Group

The materials in this teacher's guide are designed for about 18 weeks of study by secondary school students. For maximum benefit, the student needs contact with a computer, primarily for verifying and trouble-shooting the algorithms which he or she has constructed. The course is usually taught for grade 11 or 12 students. The commentary contains background material, suggestions for use, and answers for exercises for each chapter of the student text. Comments indicate the course requires more preparation time for the teacher than most high school mathematics courses; use of a student assistant is recommended. (RH)

0215 ED 143 506
Charp, Sylvia And Others
Algorithms, Computation and Mathematics. Student Text. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—66
Note—456p.; For related documents, see SE 022 984-988; Not available in hard copy due to marginal legibility of original document; Pages 3-6 missing; Best Copy Available
Pub Type— Books (010)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Algorithms, *Computers, *Instructional Materials, Programing Languages, Secondary Education, *Secondary School Mathematics, *Textbooks
Identifiers—*School Mathematics Study Group

This text contains material designed for about 18 weeks of study at grades 11 or 12. Use of a computer with the course is highly recommended. Developing an understanding of the relationship between mathematics, computers, and problem solving is the main objective of this book. The following chapters are included in the book: (1) Algorithms, Language, and Machines; (2) Input, Output, and Assignment; (3) Branching and Subscripted Variables: (4) Looping; (5) Functions and Procedures; (6) Approximations; (7) Some Mathematical Applications; and (8) Compilation and Some Other Non-Numeric Problems. Also included is a discussion on future computer applications. (RH)

0216 ED 141 126
Averett, Dorothy M. And Others
Using the Mini-Calculator to Teach Mathematics.
Philadelphia School District, Pa. Office of Curriculum and Instruction.
Pub Date—77
Note—120p.; Not available in hard copy due to copyright restrictions
Available from—Dr. Alexander Shevlin, Director, Instructional Publications and Materials, Stevens Administrative Center, 13th and Spring Garden Streets, Philadelphia, PA 19123 (Order Number 547870, $3.00)
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Calculators, *Elementary School Mathematics, Elementary Secondary Education, *Fundamental Concepts, *Instructional Materials, Mathematics Education, *Secondary School Mathematics, *Teaching Guides

This booklet is designed to aid teachers in the use of the mini-calculator in the classroom. Included in this booklet are activities and suggestions for the use of the calculator from the primary grades through the secondary mathematics courses. Each topic in the booklet includes background information for the teacher, suggested activities, games, and sample problems. Included in the publication are the following topics: (1) Selecting a Mini-Calculator for Classroom Use; (2) Preparing to Use the Mini-Calculator; (3) Classroom Uses of Mini-Calculators; (4) The Keyboard; Concepts and Basic Operations; (5) Talking Mini-Calculators; and (6) a selective bibliography. (RH)

0217 ED 116 928
Kim, K. Ed. And Others
Base Numeration Systems and Introduction to Computer Programming.
Institute for Services to Education, Inc., Washington, D.C.
Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Bureau No.—BR-7-0867
Pub Date—71
Contract—OEC-0-8-070867-0001
Note—64p.; Appendix material from ED 084 936; Occasional marginal legibility
Pub Type— Guides - General (050)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—*College Mathematics, Computer Programs, *Computer Science Education, Guides, Higher Education, Instruction, *Instructional Materials, Mathematics Education, Number Systems, Programing, Secondary Education, *Secondary School Mathematics, *Teaching

Guides
Identifiers—FORTRAN Language, Thirteen College Curriculum Program

This teaching guide is for the instructor of an introductory course in computer programming using FORTRAN language. Five FORTRAN programs are incorporated in this guide, which has been used as a FORTRAN IV SELF TEACHER. The base eight, base four, and base two concepts are integrated with FORTRAN computer programs, geoblock activities, and related exercises. Each statement of the first FORTRAN program is described in detail with suggested discussion questions and activities. (Subsequent programs are given without detail.) The FORTRAN programs included are: (1) change base eight numerals to base ten numerals, (2) determine the number of significant places for a given input data, (3) list the even numbers less than 200 for the base eight, (4) give the integral powers of ten in scientific notation, and (5) give the multiples of four in the base eight. Teaching suggestions include the modification of illustrated programs as well as activities for teaching of the design of a simple computer, unconditional and conditional transfer statements, and DO LOOPS. Fixed point (integer) system and floating point systems of computation in the digital computer are described. Problems with mathematical operation symbols complete the activities in the manual. (JBW)

0218 ED 116 927
Barnes, Bernis, Ed. And Others
It's a Computerized World: Basic Language for GE Time-Sharing System.
Institute for Services to Education, Inc., Washington, D.C.
Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Bureau No.—BR-7-0867
Pub Date—70
Contract—OEC-0-8-070867-0001
Note—53p.; Appendix material from ED 084 936; Occasional marginal legibility
Pub Type— Guides - General (050)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—College Mathematics, *Computer Programs, *Computer Science Education, Guides, Higher Education, Instruction, *Instructional Materials, Programing, Programing Languages, Secondary Education, *Secondary School Mathematics, *Teaching Guides
Identifiers—BASIC Language, Thirteen College Curriculum Program

This instructional unit of five lessons and four appendices is designed to acquaint both teacher and student with the elementary aspects of computer programming. The first two sections contain background information in computer processes and in BASIC language for a time-sharing system for those teachers who have limited backgrounds and experiences in computer science. Lessons I and II cover giving instructions in English and in BASIC; lesson III deals with translating instructions from English into BASIC; lesson IV introduces conditional control statements through simple programs; and lesson V looks into the use of subscripts in a BASIC program. Each lesson contains suggested teacher questions and related exercises for students. Appendix A contains two programs to be put on tape and checked during lessons II and IV. Appendix B contains six handouts for use with lessons II through VI. Appendix C contains the analysis of programs to find the roots of quadratic equations and also a summary of BASIC symbols. Appendix D contains programs for sums of series, dividing a line, and changing bases. (JBW)

0219 ED 081 193
Teaching Guide and Problem Supplement. A Publication of the Exemplary Project Problem Solving Computer Style 1969-1970.
New Orleans Public Schools, La.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Report No.—DPSC-67-3834
Pub Date—70
Grant—OEG-3-7-70384-4813
Note—203p.
EDRS Price - MF01/PC09 Plus Postage.
Descriptors—Algebra, Chemistry, *Computer Assisted Instruction, Computers, *Computer Science Education, Mathematics, Physics, *Problem Solving, *Programing, Secondary Education, Secondary School Students, *Teaching Guides, Trigonometry
Identifiers—Elementary Secondary Education Act Title III, FORTRAN Programing Language, IBM System 1100

Secondary school teachers incorporating the use of a computer in algebra, trigonometry, advanced mathematics, chemistry, or physics classes are the individuals for whom this book is intended. The content included in it is designed to aid the learning of programing techniques and basic scientific or mathematical principles, and to offer some solutions to illustrative problems. Eight units are devoted to a step-by-step explanation of the FORTRAN IV language and programing, with material presented in a manner which assists the teacher in developing lectures and other forms of instruction which facilitate student imitation and encourage early operation of his initial attempt at programing. Following this introduction to FORTRAN and to programing is a problem supplement with five sections, one each devoted to algebra, trigonometry, advanced math, chemistry, and physics. A short bibliography is also included. (Author/LB)

0220 ED 057 581
Lukas, George And Others
LOGO Teaching Sequences on Strategy in Problem-Solving and Story Problems in Algebra. Teacher's Text and Problems.
Bolt, Beranek and Newman, Inc., Cambridge, Mass.
Spons Agency—National Science Foundation, Washington, D.C.
Report No.—R-2165
Pub Date—30 Jun 71
Note—226p.; Programming-Language as a Conceptual Framework for Teaching Mathematics, Volume Three; See also EM009 419, EM 009 420, EM 009 422
EDRS Price - MF01/PC10 Plus Postage.
Descriptors—*Computer Assisted Instruction, *Computer Programs, *Mathematics Instruction, *Problem Solving, Secondary School Mathematics
Identifiers—Project LOGO

In order to provide high school students with general problem-solving skills, two LOGO computer-assisted instruction units were developed–one on the methods and strategies for solution and a second on the relation between formal and informal representations of problems. In both cases specific problem contexts were used to give definition and articulation to central notions like problem, problem form, solution method, and optimal strategy. The unit on strategies in problem solving illustrates strategy formation in two contexts–extrapolating number sequences and exploring mazes. The unit on story problems in algebra attempts to help students learn to convert a story problem into formal mathematical terms. For more information about the LOGO project, see volumes I, II, and IV of the report (EM 009 419, EM 009 420, and EM 009 422). (JY)

0221 ED 057 580
Grant, Richard And Others
LOGO Teaching Sequences on Numbers and Functions and Equations. Teacher's Text and Problems.
Bolt, Beranek and Newman, Inc., Cambridge, Mass.
Spons Agency—National Science Foundation, Washington, D.C.
Report No.—R-2165
Pub Date—30 Jun 71
Note—230p.; Programming-Languages as a Conceptual Framework for Teaching Mathematics, Volume Two; See also EM 009 419, EM 009 421, EM 009 422
EDRS Price - MF01/PC10 Plus Postage.
Descriptors—*Computer Assisted Instruction, *Mathematics Instruction, Numbers, *Programing Languages, Set Theory, *Teaching Guides
Identifiers—Project LOGO

The teacher's texts for two teaching sequences in the LOGO mathematics course are presented in this second volume of a four-volume report. The material presented here is designed to be a broad overview of the application of LOGO to the topics of numbers and functions. A variety of alternative paths and approaches are presented; in each case the emphasis is on crucial points and on possible pitfalls and difficulties. The sequence on numbers is not meant to accompany a first exposure to the subject, but rather, a careful retracing of steps. The level of presentation in this unit is extremely detailed, and the reader is encouraged, on first reading, to skip around as his interests dictate. The sequence on functions is written more freely. The idea of function as a black-box is here concretely realized as are many other aspects of the set-theoretic approach to functions which otherwise trouble students by their "vagueness." For Volumes I, III, and IV of the report see EM 009 419, EM 009 421, and EM 009 422. (Author/JY)

0222 ED 052 605
Koetke, Walter
Computers in the Classroom: Teacher's Resource Manual for Algebra.
Digital Equipment Corp., Maynard, Mass.
Spons Agency—Massachusetts State Dept. of Education, Boston.; Office of Education (DHEW), Washington, D.C.
Pub Date—71
Note—134p.
Available from—Digital Equipment Corporation, Educational Marketing (5-2), 146 Main Street, Maynard, Massachusetts 01754 ($3.00)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Algebra, *Computer Assisted Instruction, Computer Programs, *Mathematics Instruction, Mathematics Materials, Problem Sets, Programing, Remedial Mathematics, *Secondary School Mathematics, *Teaching Guides

Demonstration programs, possible assignments for students (with solutions), and remedial drill programs for students to use are presented to aid teachers using a computer or a computer terminal in the teaching of algebra. The text can be followed page by page or used as a well-indexed reference work, and specific suggestions are made on how and where to use the computer within the schools' present curriculum. Almost all topics discussed are completely self-contained. The order of major topics follows that used in the Modern Algebra series by Dolciani, Berman, and Wooton: arithmetic operations, variables, and sets; solving equations and inequalities in one variable; using the properties of equality, addition, and multiplication when solving equations; negative numbers; solving first degree equations and inequalities; operations with polynomials; and factoring. Sample programs are written using the Digital Equipment Corporation's FOCAL programing language, but they can be translated into any other interactive language that is suitable for student use. The manual is in loose-leaf form and provides a complete index. (Author/JY)

CALCULUS

0300 ED 174 494
Stenberg, Warren Walker, Robert J.
Calculus: A Computer Oriented Presentation, Part 1 [and] Part 2.
Center for Research in Coll. Instruction of Science and Mathematics, Tallahassee, Fla.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—Jun 70
Grant—NSF-GY-3696
Note—1,165p.; Contains occasional light and broken type
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF09/PC47 Plus Postage.
Descriptors—*Algorithms, *Calculus, *College Mathematics, *Computer Oriented Programs, Computers, Curriculum Development, Flow Charts, Higher Education, Mathematical Applications, *Mathematics Curriculum, Mathematics Education, Mathematics Instruction, *Mathematics Materials, Textbooks
Identifiers—*Functions (Mathematics)

Parts one and two of a one-year computer-oriented calculus course (without analytic geometry) are presented. The ideas of calculus are introduced and motivated through computer (i.e., algorithmic) concepts. An introduction to computing via algorithms and a simple flow chart language allows the book to be self-contained, except that material on programming languages is excluded in order to allow the use of any language. Chapter topics include sequences, integrals, applications, functions, maxima, chain rule, derivatives, logarithmic and exponential functions, infinite series, and differential equations. (MP)

0301 ED 173 147
Herriot, Sarah T. And Others
Calculus of Elementary Functions, Part III. Teacher's Commentary. Preliminary Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—68
Note—240p.; For related documents, see ED 143 515 and ED 143 517; Contains occasional light and broken type
Pub Type— Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC10 Plus Postage.
Descriptors—*Calculus, Curriculum, *Curriculum Guides, *Instruction, Mathematics Education, Secondary Education, *Secondary School Mathematics
Identifiers—*Functions (Mathematics), *School Mathematics Study Group

This is part three of a three-part manual for teachers using SMSG high school text materials. Detailed solutions are given to all the exercises in the text. Chapter topics include: (1) area and the integral; and (2) differentiation theory and technique. (MP)

0302 ED 173 146
Beck, A. And Others
Calculus, Part 2. Teacher's Commentary. Unit 69. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—65
Note—351p.; For related document, see SE 028 240; Contains occasional light and broken type
Pub Type— Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC15 Plus Postage.
Descriptors—*Calculus, Curriculum, *Curriculum Guides, *Instruction, *Mathematical Applications, Mathematics Education, Secondary Education, *Secondary School Mathematics
Identifiers—*Functions (Mathematics), *School Mathematics Study Group

This is part two of a two-part manual for teachers using SMSG high school text materials. A chapter-by-chapter commentary on the text and answers to all the exercises are given. Chapter topics include: (1) area and integral; (2) basic integral theorems; (3) logarithmic and exponential functions; (4) growth, decay and competition; and (5) integration. (MP)

0303 ED 173 145
Beck, A. And Others
Calculus, Part 1. Teacher's Commentary. Unit 68. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—65
Note—485p.; For related document, see SE 028 241; Contains occasional light and broken type
Pub Type— Guides - Classroom - Teacher (052)
EDRS Price - MF02/PC20 Plus Postage.
Descriptors—*Calculus, Curriculum, *Curriculum Guides, *Instruction, *Mathematical Applications, Mathematics Education, Secondary Education, *Secondary School Mathematics
Identifiers—*Limits (Mathematics), *School Mathematics Study Group

This is part one of a two-part manual for teachers using SMSG high school text materials. A chapter-by-chapter commentary on the text and answers to all the exercises are given. Chapter topics include the idea of the derivative, limits and continuity, differentiation, and applications of the derivative. (MP)

0305 ED 173 099
Herriot, Sarah T. And Others
Calculus of Elementary Functions, Part III, Student Text. Preliminary Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—68
Note—233p.; For related documents, see SE 027 905 and ED 143 516; Contains occasional small, light and broken type
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC10 Plus Postage.
Descriptors—*Calculus, Curriculum, *Graphs, Induction, *Instruction, Mathematics Education, Secondary Education, *Secondary School Mathematics, *Textbooks
Identifiers—*Functions (Mathematics), *School Mathematics Study Group

This is part three of a three-part SMSG calculus text for high school students. The aim of the text is to develop some of the concepts and techniques which will enable the student to obtain important information about graphs of elementary functions. Chapter topics include area and the integral, differentiation theory and technique, mathematical induction, and further techniques of integration. (MP)

0306 ED 173 098
Herriot, Sarah T. And Others
Calculus of Elementary Functions, Part I, Student Text. Preliminary Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—68
Note—338p.; For related documents, see SE 027 906 and ED 143 514; Contains occasional light and broken type
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC14 Plus Postage.
Descriptors—*Calculus, Curriculum, Graphs, *Instruction, Mathematics Education, Secondary Education, *Secondary School Mathematics, *Textbooks, *Trigonometry
Identifiers—Functions (Mathematics), *Polynomials, *School Mathematics Study Group

This is part one of a three-part SMSG calculus text for high school students. The aim of the text is to develop some of the concepts and techniques which will enable the student to obtain important information about graphs of elementary functions. Chapter topics include: (1) polynomial functions; (2) the derivative of a polynomial function; and (3) circular functions. (MP)

0307 ED 164 304
Beck, A. And Others
Calculus, Part 3, Teacher's Commentary, Unit No. 71. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—65
Note—277p.; For related documents, see SE 025 456-458; Contains light and broken type
Pub Type— Guides - General (050)
EDRS Price - MF01/PC12 Plus Postage.
Descriptors—*Calculus, *Curriculum, *Instruction, Instructional Materials, *Mathematical Applications, Mathematics Education, Secondary Education, *Secondary School Mathematics, *Teaching Guides
Identifiers—*School Mathematics Study Group

This is part three of a three-part manual for teachers using SMSG high school text materials. The overall purpose for each of the chapters is described and the mathematical development detailed. Background information for key concepts and answers for all exercises in each chapter are provided. Chapter topics include: (1) vectors and curves; (2) mechanics; (3) numerical analysis; (4) sequences and series; and (5) geometrical optics and waves. (MP)

0308 ED 164 303
Beck, A. And Others
Calculus, Part 3, Student's Text, Unit No. 70. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—65
Note—360p.; For related documents, see SE 025 456-459; Contains light and broken type
Pub Type— Books (010)
EDRS Price - MF01/PC15 Plus Postage.
Descriptors—*Calculus, *Curriculum, *Instructional Materials, *Mathematical Applications, Mathematics Education, Secondary Education, *Secondary School Mathematics, *Textbooks
Identifiers—*School Mathematics Study Group

This is part three of a three-part SMSG calculus text for high school students. One of the goals of the text is to present calculus as a mathematical discipline as well as presenting its practical uses. The authors emphasize the importance of being able to interpret the concepts and theory in terms of models to which they apply. The text demonstrates the origins of the ideas of the calculus in practical problems; attempts to express these ideas precisely and develop them logically; and finally, returns to the problems and applies the theorems resulting from that development. Chapter topics include: (1) vectors and curves; (2) mechanics; (3) numerical analysis; (4) sequences and series; and (5) geometricl optics and waves. (MP)

0309 ED 164 302
Beck, A. And Others
Calculus, Part 2, Student's Text, Unit No. 67. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—65
Note—304p.; For related documents, see SE 025 456-459; Contains occasional light and broken type
Pub Type— Books (010)
EDRS Price - MF01/PC13 Plus Postage.
Descriptors—*Calculus, *Curriculum, *Instructional Materials, *Mathematical Applications, Secondary Education, *Secondary School Mathematics, *Textbooks
Identifiers—*School Mathematics Study Group

This is part two of a three-part SMSG calculus text for high school students. One of the goals of the text is to present calculus as a mathematical discipline as well as presenting its practical uses. The authors emphasize the importance of being able to interpret the concepts and theory in terms of models to which they apply. The text demonstrates the origins of the ideas of the calculus in practical problems; attempts to express these ideas precisely and develop them logically; and finally, returns to the problems and applies the theorems resulting from that development. Chapter topics include: (1) area and integral; (2) basic integral theorems; (3) logarithmic and exponential functions; (4) growth, decay, and competition; and (5) integration. (MP)

0310 ED 164 301
Beck, A. And Others
Calculus, Part 1, Student's Text, Unit No. 66. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—66
Note—373p.; For related documents, see SE 025 457-459; Contains occasional light type

Pub Type— Books (010)
EDRS Price - MF01/PC15 Plus Postage.
Descriptors—*Calculus, *Curriculum, *Instructional Materials, *Mathematical Applications, Mathematics Education, Secondary Education, *Secondary School Mathematics, *Textbooks
Identifiers—*School Mathematics Study Group

This is part one of a three-part SMSG calculus text for high school students. One of the goals of the text is to present calculus as a mathematical discipline as well as presenting its practical uses. The authors emphasize the importance of being able to interpret the concepts and theory in terms of models to which they apply. The text demonstrates the origins of the ideas of the calculus in practical problems; attempts to express these ideas precisely and develop them logically; and finally, returns to the problems and applies the theorems resulting from that development. Chapter topics include: (1) Introduction; (2) The Idea of Derivative; (3) Limits and Continuity; (4) Differention; and (5) Applications of the Derivative. (MP)

0311 ED 156 452
Instructional Guide for Calculus, Secondary Mathematics.
Montgomery County Public Schools, Rockville, Md.
Pub Date—78
Note—210p.; Not available in hard copy due to copyright restrictions
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Behavioral Objectives, *Calculus, *Course Descriptions, Educational Objectives, Evaluation, *Instructional Materials, Mathematics Materials, Secondary Education, *Secondary School Mathematics, *Teaching Guides

The purpose of this instructional guide is to assist teachers of calculus in the organization and presentation of the course content to best meet the needs of the student. The behaviors expected of the student have been organized into eleven units. These units include the topics recommended for those students preparing for the CEEB advanced placement BC test administered in May of each year. Within each unit is an introduction, a list of the instructional objectives for that unit, at least two sample performance objectives for most instructional objectives, sample assessment measures and answers for the assessment measures. Special features of this guide are a Performance Objective Index which keys each objective to currently approved text materials, and a list of suggested assignments. (MN)

0312 ED 143 554
Twersky, Victor
Studies in Mathematics, Volume XV. Calculus and Science.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—67
Note—151p.; For related documents, see SE 023 028-041
Pub Type— Books (010)
EDRS Price - MF01/PC07 Plus Postage.
Descriptors—*Calculus, College Mathematics, *Instructional Materials, Mathematical Applications, *Physical Sciences, *Secondary School Mathematics, *Textbooks
Identifiers—*School Mathematics Study Group

This book is designed to illustrate how one general method of calculus is used in many different sciences and how different methods of calculus have furthered the development of essentially one field of science. The material is written so that it could serve as a math-science supplement for many courses. Chapters included are: (1) Introduction; (2) Growth, Decay, and Competition; and (3) Geometrical Optics and Waves. The Introduction contains suggestions for teaching, additional readings, and sequence of materials. (RH)

0313 ED 143 517
Herriot, Sarah T. And Others
Calculus of Elementary Functions, Part II. Teacher's Commentary. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—69
Note—463p.; For related documents, see SE 022 991-993; Contains occasional light and broken type
Pub Type— Guides - General (050)
EDRS Price - MF01/PC19 Plus Postage.
Descriptors—*Algebra, *Calculus, *Instructional Materials, Mathematics, Number Concepts, Secondary Education, *Secondary School Mathematics, *Teaching Guides
Identifiers—*School Mathematics Study Group

This course is intended for students who have a thorough knowledge of college preparatory mathematics, including algebra, axiomatic geometry, trigonometry, and analytic geometry. This teacher's guide is for Part II of the course. It is designed to follow Part I of the text. The guide contains background information, suggested instructional materials, and answers to student exercises. (RH)

0314 ED 143 516
Herriot, Sarah T. And Others
Calculus of Elementary Functions, Part II. Student Text. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—69
Note—467p.; For related documents, see SE 022 991-994; Not available in hard copy due to marginal legibility of original document
Pub Type— Books (010)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Algebra, *Calculus, *Instructional Materials, Mathematics, Number Concepts, Secondary Education, *Secondary School Mathematics, *Textbooks
Identifiers—*School Mathematics Study Group

This course is intended for students who have a thorough knowledge of college preparatory mathematics, including algebra, axiomatic geometry, trigonometry, and analytic geometry. This text, Part II, contains material designed to follow Part I. Chapters included in this text are: (6) Derivatives of Exponential and Related Functions; (7) Area and the Integral; (8) Differentiation Theory and Technique; and (9) Integration Theory and Technique. Appendices include: (3) Mathematical Induction; (4) Further Techniques of Integration; (5) The Integral for Monotone Functions; (6) Inequalities and Limits; (7) Continuity Theorems; (8) More about Integrals; and (9) Logarithm and Exponential Functions as Solutions to Differential Equations.

0315 ED 143 515
Herriot, Sarah T. And Others
Calculus of Elementary Functions, Part I. Teacher's Commentary. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—69
Note—293p.; For related documents, see SE 022 991-994; Contains occasional light and broken type
Pub Type— Guides - General (050)
EDRS Price - MF01/PC12 Plus Postage.
Descriptors—*Algebra, *Calculus, *Instructional Materials, Mathematics, Number Concepts, Secondary Education, *Secondary School Mathematics, *Teaching Guides
Identifiers—*School Mathematics Study Group

This course is intended for students who have a thorough knowledge of college preparatory mathematics including algebra, axiomatic geometry, trigonometry, and analytic geometry. It does not assume they have acquired a background of elementary functions. This teacher's guide contains background information, suggested instructional procedures, and answers to student exercises. (RH)

0316 ED 143 514
Herriot, Sarah T. And Others
Calculus of Elementary Functions, Part I. Student Text. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—69
Note—413p.; For related documents, see SE 022 992-994; Contains occasional light and broken type
Pub Type— Books (010)
EDRS Price - MF01/PC17 Plus Postage.
Descriptors—*Algebra, *Calculus, *Instructional Materials, Mathematics, Number Concepts, Secondary Education, *Secondary School Mathematics, *Textbooks
Identifiers—*School Mathematics Study Group

This course is intended for students who have a thorough knowledge of college preparatory mathematics, including algebra, axiomatic geometry, trigonometry, and analytic geometry. This text, Part I, contains the first five chapters of the course and two appendices. Chapters included are: (1) Polynomial Functions; (2) The Derivative of a Polynomial Function; (3) Circular Functions; (4) Derivatives of Circular Functions; and (5) Exponential and Related Functions. The appendices are: (1) Functions and Their Representations; and (2) Polynomials. (RH)

0317 ED 123 068
Cosler, Norma, Ed.
Individualized Math Problems in Calculus and Statistics. Oregon Vo-Tech Mathematics Problem Sets.
Oregon Math Education Council, Salem.; Oregon State Dept. of Education, Salem. Career and Vocational Education Section.
Pub Date—74
Note—18p.; For related documents, see SE 020 628-648
Available from—Continuing Education Publications, P.O. Box 1491, Portland, Oregon 97207
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Calculus, Individualized Instruction, *Instructional Materials, Mathematical Applications, Mathematics Education, *Problem Sets, Secondary Education, *Secondary School Mathematics, Statistics, *Vocational Education
Identifiers—*Oregon Vo Tech Math Project

This is one of eighteen sets of individualized mathematics problems developed by the Oregon Vo-Tech Math Project. Each of these problem packages is organized around a mathematical topic and contains problems related to diverse vocations. Solutions are provided for all problems. Problems in which calculus and statistics are applied to forestry, manufacture of forest products, and electronics are presented. Problems call for computation of derivatives, integrals, means, and standard deviations. (SD)

0318 ED 116 745
Blough, David K.
A Student-Oriented Individualized Learning Program for Calculus at the Community College.
Note—35p.
Pub Type— Guides - General (050)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Behavioral Objectives, *Calculus, *College Mathematics, Curriculum Design, Curriculum Guides, *Individualized Instruction, Multimedia Instruction, Teaching Methods, *Two Year Colleges

The individualized community college calculus course described here was developed to accomodate differences in student learning rates. It consists of three units: (I) limits and continuity; (II) the derivative with applications; and (III) the integral with applications. There are three sections in Unit I, four sections in Unit II, and five sections in Unit III. The student must pass an examination on each section before he/she may proceed to the next section. An examination for a given section may be repeated only twice, and the amount of points allotted for the examination decreases with the number of tries necessary to pass it. Although the course carries three units of credit, the student may elect to complete only one or two of the units in one semester and to finish the course during the subsequent semesters. Each student works with video-taped lectures and a textbook; regularly scheduled question-answer sessions and personal assistance are also available. The goals and behavioral objectives for each unit are detailed, and sample assignments and exams for Unit I are included. (DC)

0319 ED 097 206
Selby, Peter H.
Calculus for the Reluctant Learner.
Pub Date—1 Jan 72
Note—138p.
Pub Type— Books (010)
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—*Calculus, *College Mathematics, Low Achievement, Mathematics Education, Programed Instruction, *Programed Instructional Materials, Self Evaluation, Slow Learners, *Textbooks

This introductory calculus book was especially written for the average or below average student. Its primary intent is to give an overview of basic concepts. Written in programmed instruction format, it contains reviews and self-tests. (Average/LS)

0320 ED 086 539
Forrester, Gary B.
Techniques of Differentiation and Integration, Mathematics (Experimental): 5297.27.
Dade County Public Schools, Miami, Fla.
Pub Date—71
Note—64p.; An Authorized Course of Instruction for the Quinmester Program
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Behavioral Objectives, *Calculus, *Curriculum, Instruction, Mathematics Education, *Objectives, *Secondary School Mathematics, *Teaching Guides, Tests
Identifiers—*Quinmester Program

This guidebook on minimum course content was designed for students who have mastered the skills and concepts of analytic geometry. It is a short course in the basic techniques of calculus recommended for the student who has need of these skills in other courses such as beginning physics, economics or statistics. The course does not intend to teach applications of the calculus to any particular area of study nor to delve to any extent into theory. Some background work in functions and notation is provided in the first week. Overall course goals are specified; a course outline, performance objectives, and suggested teaching strategies are listed. (JP)

0321 ED 067 286
Gomez, Maria
Calculus 2, Mathematics: 5297.42.
Dade County Public Schools, Miami, Fla.
Pub Date—71
Note—21p.; An Authorized Course of Instruction for the Quinmester Program
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Behavioral Objectives, *Calculus, *Curriculum, Instruction, Mathematics Education, *Objectives, *Secondary School Mathematics, *Teaching Guides, Tests
Identifiers—*Quinmester Program

The second in a four-part sequence for the student seeking Advanced Placement, this booklet emphasizes theory and applications of the derivative and the definite integral. Overall goals and performance objectives are speficied. A course outline, teaching suggestions, and references to state-adopted texts are given for each topic covered. A sample test is included. (DT)

0322 ED 055 820
Scharf, John And Others
Advanced Placement Mathematics Calculus, Grade 12 Curriculum Guide.
Warren City Schools, Ohio.
Pub Date—69
Note—13p.
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—*Advanced Placement Programs, Analytic Geometry, *Calculus, *Curriculum Guides, Grade 12, Instruction, Mathematics Education, *Secondary School Mathematics

This document is a guide to the advanced placement program in calculus for grade 12 in the city schools in Warren, Ohio. The program covers analytic geometry, differential and integral calculus of algebraic functions, elementary transcendental functions, and applications of differentiation and integration. The philosophy and aims of the program are also discussed. (MM)

CAREER EDUCATION

0400 ED 181 201

The Uncomplicated Elementary Career Education System for the "Real" Classroom. Career Corners-Math for 7-8.

Illinois State Office of Education, Springfield. Div. of Adult Vocational and Technical Education.
Pub Date—Feb 79
Note—114p.; For related documents see CE 023 596 and CE 023 598-599.
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—Arithmetic, *Career Education, *Career Exploration, Class Activities, Decimal Fractions, Elementary Education, *Elementary School Mathematics, Fractions, *Fused Curriculum, Geometry, Grade 7, Grade 8, Instructional Materials, Integers, *Job Skills, Junior High Schools, Learning Activities, Measurement, Percentage, Worksheets

Prepared by classroom teachers for the infusion of career education into existing curriculum, this notebook contains career-related student worksheets in a number of math skills. The activities are suitable for use with a variety of ability levels and learning styles. These worksheets for grades 7 and 8 are divided into seven major mathematics areas: addition-subtraction, multiplication-division, decimals, fractions, percentages, integers, and geometry-measurement. Answers are located on the backs of the worksheets. Sample worksheet titles under addition-subtraction include "Count Your Calories," "$300 to Spend," and "The Three M's" (mean, median, and mode); under multiplication-division: "Counting Cups," "The High Cost of Living," and "Cash Count"; under decimals: "Miles per Gallon," "Making Change," "Time Cards," and "Order Forms"; under fractions: "Farm Land" and "Cookies"; under percentages: "Your Savings Earn More" and "Commission"; under integers: "Balance or Bust" and "Being a Surveyor"; and under geometry-measurement: "Estimating Roofs" and "Plan a City." On each worksheet are indicated the careers to which that particular activity is related. (YLB)

0401 ED 181 199

The Uncomplicated Elementary Career Education System for the "Real" Classroom. Career Capers for 4-6.

Illinois State Office of Education, Springfield. Div. of Adult Vocational and Technical Education.
Pub Date—Feb 79
Note—103p.; For related documents see CE 023 596 and CE 023 598-600.
Pub Type— Guides - Classroom - Learner (051) — Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—*Career Awareness, *Career Education, Career Opportunities, Class Activities, *Elementary School Mathematics, Elementary School Science, Fine Arts, Food Service, *Fused Curriculum, Health Education, Health Services, Instructional Materials, Intermediate Grades, *Language Arts, Learning Activities, Marine Technicians, Marketing, Mass Production, Occupational Information, Self Concept, Social Studies, Transportation, Worksheets

Prepared by classroom teachers for the infusion of career education into existing curriculum, this notebook of student and teacher activities is designed for use with the monthly Factivities for grades 4-6 (CE 023 596). Each activity corresponds to one of the nine monthly topics: "me, myself, and I"; exploring the telephone book; transportation; marketing; health services; automobile mass production; the world of work; marine sciences; and classroom cooking. Representing various ability levels and learning modes, the activities are divided into sections by the five basic curricular areas of language arts, mathematics, social studies, science and health, and fine arts. (YLB)

0402 ED 181 198

The Uncomplicated Elementary Career Education System for the "Real" Classroom. Grades K-6 Factivities.

Illinois State Office of Education, Springfield. Div. of Adult Vocational and Technical Education.
Pub Date—Feb 79
Note—140p.; For related documents see CE 023 598-600.
Pub Type— Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—*Career Awareness, *Career Education, Career Opportunities, *Class Activities, Elementary Education, Elementary School Mathematics, Elementary School Science, Fine Arts, *Fused Curriculum, Health Education, Instructional Materials, Intermediate Grades, Interpersonal Competence, Language Arts, Learning Activities, Occupations, Primary Education, *Self Concept, Social Studies, Worksheets

Prepared by classroom teachers for the infusion of career education into existing curriculum, these teacher materials are designed to accompany the "Career Capers" for grades 4-6 (CE 023 598). Monthly distribution to the classroom teacher by an administrator is suggested for these supplemental materials. Factivities for grades K-3 emphasize career areas found in the card file box. Materials for each month include objectives, activities, language arts and math ideas for the month's topic, and student worksheets suitable for duplication. Topics are self-awareness, job awareness, community, communication, health, agriculture, animal care, construction, and transportation. Factivities for grades 4-6 emphasize career topics. For each month student worksheets are presented for the curriculum areas of the "Career Capers" notebook, including language arts, mathematics, social studies, science and health, and fine arts. Topics for each month are "me, myself, and I"; exploring the telephone book; transportation; marketing; health services; automobile mass production; the world of work; marine sciences; and classroom cooking. (YLB)

0403 ED 181 196

Taylor, Harold D.

Ten Mathematics Projects and Career Education Infusion. Information Series No. 176.

ERIC Clearinghouse on Adult, Career, and Vocational Education, Columbus, Ohio.; Ohio State Univ., Columbus. National Center for Research in Vocational Education.
Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Pub Date—79
Contract—400-76-0122
Note—38p.
Available from—National Center Publications, National Center for Research in Vocational Education, The Ohio State University, 1960 Kenny Road, Columbus, OH 43210 ($2.80)
Pub Type— Reports - Descriptive (141) — Information Analyses - ERIC Information Analysis Products (071)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Career Education, Elementary Secondary Education, *Fused Curriculum, *Mathematics Education, Program Costs, *Program Evaluation
Identifiers—Career Development Program, Developmental Career Guidance Project, Fostering Team Approach Career Education, Project CAP, Project CDCC, Project CERES, Project EPIC FL, Project EPIC KY, Project Equality, Project MATCH

Ten projects which used mathematics as a major element to infuse career education into the regular school curriculum are presented in the reivew. The projects generally include programs for grades K-12. The report analyzes the ten projects from the standpoint of whether or not mathematics was involved as a subject area and, if so, to what extent. Such relevant data as the grade levels involved, the types of student population, the types of school districts, the cost of implementation, and the level of success are reported. The projects by title and location are as follows: (1) Career Development Program, Akron (Ohio) Public Schools; (2) Developmental Career Guidance Project, Pima County, Arizona; (3) Fostering a Team Approach to Career Education, Prince George's County (Maryland) Public Schools; (4) Project CAP, Boston Mountains (Greenland, Arkansas) Education Cooperative; (5) Project CDCC, Coloma (Michigan) Community School District; (6) Project CERES, Ceres (California) Unified School District; (7) Project EPIC, Ft. Lauderdale, Florida; (8) Project EPIC, Jefferson County (Kentucky) Public Schools; (9) Project Equality, Highline Public Schools (Seattle, Washington); (10) Project MATCH, Ontario-Montclair (California) School District. (CT)

0404 ED 181 187

Walkenshaw, Sara, Comp.

Careers. A Districtwide, School Based Approach.

Kansas City School District, Mo.
Spons Agency—Office of Education (DHEW), Washington, D.C.
Pub Date—79
Note—930p.; Parts of this document will not reproduce well due to small, light, or broken type
Pub Type— Guides - Classroom - Teacher (052)
EDRS Price - MF06/PC38 Plus Postage.
Descriptors—Behavioral Objectives, *Career Education, Career Exploration, Curriculum Guides, English Curriculum, *Fused Curriculum, Junior High Schools, *Learning Activities, Mathematics Materials, Reading, Reading Materials, Science Activities, Secondary School Mathematics, Secondary School Science, Social Studies, Teaching Guides, Teaching Methods

The career education materials and concepts in this collection were developed or adapted from other sources by participants in a districtwide junior high career education project piloted in Kansas City, Missouri. Early portions define career education and suggest roles and functions for the collaborative efforts of all who are involved in the teaching/learning process. Sections are also devoted to career education goals and teaching points, evaluation, and teaching methods for both classroom activities and world-of-work exploration. There is a small section on identifying bias and stereotyping and a unit on life planning. The major portion of the guide consists of career education infusion strategies in three categories: (1) general, which covers sixty broad topics such as personal inventory, job interview, career plans, etc., (2) core subject, which offers sixty sets of materials and aids for teachers of social studies, English, science, math, and reading, and (3) other, which includes materials on individualized instruction units, vocal music, child care, etc. The infusion strategies sections include objectives, descriptions, and resource lists for each activity along with supplementary worksheets and exercises. Career education bulletin board ideas and sample applications are appended. (PV)

0405 ED 173 657

Motivating Girls to Prepare for Math-Related Occupations. Final Report.

Torrance Unified School District, Calif.
Spons Agency—Office of Education (DHEW), Washington, D.C.
Bureau No.—19-65060-3-8-231
Pub Date—[79]
Note—82p.; Appendix E may not reproduce well due to small print
Pub Type— Reports - Descriptive (141) — Tests/Questionnaires (160)
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—Career Choice, *Career Education, *Careers, Counselor Attitudes, *Females, *Mathematics Education, Parent Participation, Parent School Relationship, Program Descriptions, Questionnaires, School Business Relationship, School Community Relationship, Secondary Education, *Sex Stereotypes, *Student Attitudes, Student Interests, Student Motivation, Students, Teacher Attitudes

Because of girls' relatively low motivation to pursue math studies, this project's purposes were to expand girls' career choice possibilities, to increase the quality of motivation and career guidance offered by counselors and teachers, and to involve parents of ninth-grade girls by providing specific information about the project and about math-related career opportunities. Twenty-five ninth-grade girls at each of two high schools were selected to participate. Project activities included setting up a series of visitations for students with leaders in business, industry, and the professions. Successful role models visited the campus to talk with students, parents, teachers, and counselors. Also, as a part of the project, inservice meetings were held for teachers and counselors to assist them in providing better career motivation and guidance to girls. The results of the project showed (1) an increased number of girls enrolling in math; (2) an increased level of confidence in math; (3) an increased number of girls choosing a math-related career; and (4) an increased awareness and interest by teachers, counselors, and parents. (The questionnaires, surveys, and project performance management forms are appended.) (Author/LRA)

0406 ED 167 753

Mathematics Used in Occupations: An Interrelated Guide.

Minneapolis Public Schools, Minn. Dept. of Vocational Technical Education.

Spons Agency—Minnesota State Dept. of Education, St. Paul. Pupil Personnel Services Section.; Office of Education (DHEW), Washington, D.C.

Note—656p.

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF03/PC27 Plus Postage.

Descriptors—*Curriculum Development, Curriculum Guides, Fused Curriculum, *Integrated Curriculum, *Job Skills, Mathematical Applications, Mathematical Concepts, Mathematics, *Mathematics Curriculum, *Mathematics Education, Secondary Education, *Vocational Education

Intended for use by counselors and mathematics teachers, this guide brings together mathematical and occupational skills to form an interrelated curriculum. Eight occupational clusters are included as follow: (1) business and office, (2) communications, (3) construction, (4) hospitality, (5) manufacturing, (6) marketing and distribution, (7) personal service, and (8) transportation. The scope of each cluster is defined, and the major job areas within it are identified in conjunction with suggested vocational courses. A chart then shows the relation of the occupational courses to the mathematical concepts and the mathematical courses in which they are taught. Besides giving the occupational applications of the concept, the chart refers to the appendixes which contain examples of the mathematical problems encountered in the specific occupations. The mathematical skills applied include the following: areas and volumes; computer science; conics; geometry; decimals; basic arithmetic; exponents, roots, and powers; formulas and equations; graphs and tables; logarithms; logic and proof; matrices; measurement systems; parallels and perpendiculars; percents; perspectives and transformations; polynomials; calculus; products and factors; ratio and proportion; statistics and probability; trigonometry; and vector applications. (ELG)

0407 ED 153 029

Grotenhuis, Paul Purcell, Carol

Career Related Math Units for General Math 9.

Roseville Area School District 623, Minn.

Spons Agency—Office of Education (DHEW), Washington, D.C.

Pub Date—78

Note—89p.

Pub Type— Guides - General (050)

EDRS Price - MF01/PC04 Plus Postage.

Descriptors—*Career Education, Grade 9, Mathematics Curriculum, Secondary Education, *Secondary School Mathematics, *Simulation, Teaching Guides, *Units of Study, *Worksheets

In this collection of four career-oriented units designed to enhance a ninth grade general math curriculum, the objectives listed are (1) to provide a job oriented environment in which students are encouraged to develop responsible attitudes toward employer and self and to find interest areas to use as the basis for career choices, (2) to provide incentives, both rewards and penalties, similar to those found in real job situations, and (3) to provide lesson plans and student materials which are relative, needs-oriented, math-oriented and career-oriented in order to eliminate extensive teacher preparation time. Titles of the four units are the following: Careers in Sales; Construction; Driving Occupations (delivery truck driver); and Department Store Clerk. Although the bulk of materials in each unit are examples of student worksheets (e.g., arithmetic problems and record forms that would be encountered in the occupation), instructions are given for using the materials within the context of a simulated work setting in which the teacher functions as employer or "boss" and the students as employees. It is suggested that the units may be used for varying periods of time and different class situations. For example, they can be used as "rewards" for individual students who complete the required work, for groups of students who would benefit from course enrichment, or as a general class assignment. (VB)

0408 ED 120 349

Michalicek, Richard And Others

Career Related Math Units. Teacher's Edition.

Robbinsdale Independent School District 281, Minn.

Spons Agency—Minnesota State Dept. of Education, St. Paul. Div. of Vocational and Technical Education.

Pub Date—Nov 71

Note—448p.; For related document, see CE 005 684

Pub Type— Guides - General (050)

EDRS Price - MF01/PC18 Plus Postage.

Descriptors—*Career Education, Career Exploration, Career Opportunities, Home Management, *Individualized Instruction, *Instructional Materials, Job Skills, Learning Activities, Mathematics Curriculum, Mathematics Education, Mathematics Instruction, *Mathematics Materials, Noncollege Bound Students, Occupational Information, Secondary Education, *Secondary School Mathematics, Simulation, Units of Study, Worksheets

Individualized units of math instruction related to each of several occupations in 14 occupational clusters comprise the high school career-related math curriculum. An introductory booklet provides students with general information on the clusters; when students have selected an occupation that interests them, they take the packet of instructional materials for that occupation, complete the pretest, and, in conference with the teacher, decide whether to continue the unit or to concentrate first on any math skills in which the pretest has revealed a deficiency. Each instructional unit relates information about a career and about home management in a personalized narrative, which contains problems requiring specific math skills. The materials include facsimiles of forms used by persons employed in the occupation; the authors recommend supplementing these with actual source materials. Contained in the document are the students' introductory booklet, the kits of instructional materials, pretests and posttests, answer keys, a student record sheet, and recommendations for teachers on procedures. The materials were prepared by a team of Minnesota math teachers and a work experience coordinator, after their students identified the jobs in which they were most interested. The units present fictional persons pursuing occupations which follow traditional sex-role expectations. (Author/AJ)

0409 ED 120 340

Robinson, Mary

Career Education Math: Units for Career Exploration in Sixth, Seventh or Eighth Grade.

Oklahoma State Dept. of Vocational and Technical Education, Stillwater. Curriculum and Instructional Materials Center.

Spons Agency—Office of Education (DHEW), Washington, D.C.

Pub Date—74

Note—154p.; Page 34 will reproduce poorly; For related documents, see CE 005 188-191

Available from—Oklahoma State Dept. of Vocational and Technical Education, 1515 West Sixth, Stillwater, Oklahoma 74074 ($3.25)

Pub Type— Guides - General (050)

EDRS Price - MF01/PC07 Plus Postage.

Descriptors—*Career Education, *Career Exploration, Computer Science Education, Course Content, Educational Objectives, Hospital Personnel, *Instructional Materials, Integrated Curriculum, Intermediate Grades, Junior High Schools, Learning Activities, *Mathematics Education, Mathematics Materials, Metric System, Occupational Clusters, Statistics, *Teaching Guides, Transportation, Unit Plan

The guide, designed for sixth, seventh, or eighth grade teachers and students, presents five mathematics instructional units for career exploration related to the occupational clusters transportation, communication, manufacturing, health, and business and office occupations. The units deal specifically with: shippers of household goods, the computer, metric measure, and hospital workers. Each unit is based on behavioral objectives which are stated as terminal objectives, dealing with the subject matter to be covered, and as specific objectives, dealing with the student performance necessary to reach the terminal objective. The other components of each unit are:list of suggested activities for instructor and student, reference list, information sheets outlining the content of the unit and a brief description of jobs related to the unit, assignment sheets pro specific written activities, job sheets providing creative projects, answers to assignment sheets, a unit test, and answers to the test. Some units also contain transparency masters. Instructions for using the guide and forms and guidelines for field trips, interviews, and resource people are included. (MS)

0410 ED 117 574

Nuschler, Alexandra And Others

Business Mathematics. Mathematics Curriculum Guide (Career Oriented).

Louisiana State Dept. of Education, Baton Rouge.

Report No.—Bull-1279; VT-102-470

Pub Date—May 74

Note—42p.; For related documents, see CE 006 282-290

Pub Type— Guides - General (050)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Behavioral Objectives, *Business Education, *Career Education, *Curriculum Guides, Learning Activities, *Mathematical Applications, Mathematics Curriculum, *Secondary Education

Identifiers—Louisiana

The curriculum guide correlates concepts in business mathematics with career-oriented concepts and activities. The curriculum outline format gives the concepts to be taught, matched with related career-oriented performance objectives, concepts, and suggested instructional activities in facing page layouts. The outline is divided into the major sections of fundamental arithmetic, consumer mathematics, retailing, mathematics of finance and investment, taxes and insurance, and business graphs and records. (NJ)

0411 ED 117 573

Nuschler, Alexandra And Others

Geometry. Mathematics Curriculum Guide (Career Oriented).

Louisiana State Dept. of Education, Baton Rouge.

Report No.—Bull-1280; VT-102-469

Pub Date—May 74

Note—55p.; For related documents, see CE 006 282-291

Pub Type— Guides - General (050)

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—Behavioral Objectives, *Career Education, *Curriculum Guides, *Geometry, Learning Activities, Mathematical Applications, Mathematics Curriculum, *Secondary Education

Identifiers—Louisiana

The curriculum guide correlates concepts in geometry with career-oriented concepts and activities. The curriculum outline format gives the concepts to be taught, matched with related career-oriented performance objectives, concepts, and suggested instructional activities in facing page layouts. The suggested curriculum outline is compatible with all books on the approved textbook list for Louisiana. The outline is divided into the major sections of elements of geometry, introduction to proof, lines and planes, congruence, polygons and polygonal regions, circles, similarity, trigonometry, plane coordinate geometry, and solid figures. (NJ)

0412 ED 117 572

Ohmer, Merlin M. And Others

Algebra II. Mathematics Curriculum Guide (Career Oriented).

Louisiana State Dept. of Education, Baton Rouge.

Report No.—Bull-1283; VT-102-468

Pub Date—May 74

Note—59p.; For related documents, see CE 006 282-291

Pub Type— Guides - General (050)

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—*Algebra, Behavioral Objectives, *Career Education, *Curriculum Guides, Learning Activities, Mathematical Applications, Mathematics Curriculum, *Secondary Education

Identifiers—Louisiana

The curriculum guide for Albegra 2 correlates algebraic concepts with career-oriented concepts and activities. The curriculum outline format gives the concepts to be taught, matched with related career-oriented performance objectives, concepts, and suggested instructional activities in facing page layouts. The suggested curriculum outline is compatible with all books on the approved textbook lists for Louisiana. The outline is divided into the following major headings: review of sets and the real number system; equations and inequalities; complex number system; relations, functions, and conic sections; exponential and logarithmic functions; sequence, series, and the binomial theorem; permutations, combinations, and probability; and introductory trigonometry. (NJ)

0413 ED 117 571
Nuschler, Alexandra And Others
General mathematics: Part 2. Mathematics Curriculum Guide (Career Oriented).
Louisiana State Dept. of Education, Baton Rouge.
Report No.—Bull-1281; VT-102-467
Pub Date—May 74
Note—91p.; For related documents, see CE 006 282-291
Pub Type— Guides - General (050)
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—Algebra, Arithmetic, Behavioral Objectives, *Career Education, *Continuous Progress Plan, *Curriculum Guides, Geometry, Learning Activities, Mathematical Applications, *Mathematics, Mathematics Curriculum, Relevance (Education), *Secondary Education
Identifiers—Louisiana

The curriculum guide for secondary level, career-oriented General Mathematics Part 2, correlates performance objectives in basic mathematics with career-oriented concepts and activities. The material is designed to lead the student in a systematic development that provides for continuous progress. The guide is in outline format, providing a curriculum outline, performance objectives, and related (career-oriented) concepts, objectives, and learning activities. The guide encompasses the topic headings of refresher arithmetic and algebra; informal geometry; mathematics related to shop, construction, nursing, homemaking, sports, and travel; and mathematics for electricians. (NJ)

0414 ED 117 570
Nuschler, Alexandra And Others
General Mathematics; Part 1. Mathematics Curriculum Guide (Career Oriented).
Louisiana State Dept. of Education, Baton Rouge.
Report No.—Bull-1270; VT-102-466
Pub Date—May 74
Note—63p.; For related documents, see CE 006 282-291; The table of contents is incomplete
Pub Type— Guides - General (050)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Arithmetic, Behavioral Objectives, *Career Education, Continuous Progress Plan, *Curriculum Guides, Geometry, Learning Activities, *Mathematics, Mathematics Curriculum, Measurement, *Secondary Education, Statistics
Identifiers—Louisiana

The curriculum guide for secondary level, career-oriented General Mathematics Part 1, correlates performance objectives in basic mathematics with career-oriented concepts and activities. The material is designed to lead the student in a systematic development that provides for continuous progress. The guide is in outline format, providing a curriculum outline, performance objectives, and related (career-oriented) concepts, objectives, and learning activities. The guide encompasses the main topic areas of developmental arithmetic, introduction to algebra, geometry, measurement, introduction to statistics, and enrichment topics. (NJ)

0415 ED 117 432
Atkinson, Marilyn And Others
Career Education: Learning with a Purpose. Secondary Guide-Vol. 5. Mathematics and Career Clusters, Mathematics Related Activity Suggestions, Field Trip Sites and Guest Speakers.
State Fair Community Coll., Sedalia, Mo.
Spons Agency—Office of Education (DHEW), Washington, D.C.
Note—168p.; For Volumes 1-6, see CE 006 075-080; For Junior High School Guides, see CE 006 362-365
Pub Type— Guides - General (050)
EDRS Price - MF01/PC07 Plus Postage.
Descriptors—*Career Education, Curriculum Development, *Curriculum Guides, Educational Objectives, Integrated Curriculum, *Mathematics, *Occupational Clusters, Resource Materials, *Secondary Education, Teaching Methods, Unit Plan

The guide offers a compilation of teacher-developed career education materials which may be integrated with secondary level curriculum in mathematics. Suggested activities and ideas present the following units based on career clusters as they relate to mathematics: construction, communications and media, hospitality and recreation, public service, marine science, health, manufacturing, transportation, and agri-business and natural resources. Activity suggestions for other math-related units are also given including several "silent lectures" emphasizing logical problem solving and units on consumer economics, metrics, computer science, statistics, and other mathematical applications. Objectives, teaching procedure, and related resources and materials are presented for each unit. A 12-page list of suggested local field trip sites and guest speakers is included. (EC)

0416 ED 116 933
Mahaffey, Michael L. McKillip, William D.
Career Oriented Mathematics, Student's Manual. [Includes Scale; Apprenticeship: Learning to be a Cement Mason; Textiles; Being Self-Employed: Harvesting and Sale of Pulpwood; and Lumber Yard Employee.]
Berrien County Schools, Nashville, Ga.
Spons Agency—Bureau of School Systems (DHEW/OE), Washington, D.C.; Georgia State Dept. of Education, Atlanta.
Pub Date—[75]
Note—116p.; For the accompanying teacher's manual, see SE 019 993. Other documents in this series include SE 019 991 and 992
Available from—Berrien County Board of Education, Title III, P.O. Box 473, Nashville, Georgia 31639 (1-4 copies, $4.00 ea., 5-9, $3.75 ea., 10-30, $3.50 ea., 31 or more, $3.25 ea., payment must accompany orders; Teacher Manual included with order of 30 Student Manuals)
Pub Type— Books (010)
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—*Basic Skills, *Career Education, Curriculum, Education, Geometry, Instruction, *Instructional Materials, *Mathematical Applications, Mathematics, Measurement, Motivation, Secondary Education, *Secondary School Mathematics, Textbooks
Identifiers—*Career Oriented Mathematics, Elementary Secondary Education Act Title III, University of Georgia

This volume includes student manuals for five units in the Career Oriented Mathematics Program, which was developed to improve mathematical abilities and attitudes of secondary students by presenting the material in a job-relevant context. The units are titled: (1) Scale, (2) Apprenticeship: Learning to be a Cement Mason, (3) Textiles, (4) Being Self-Employed: Harvesting and Sale of Pulpwood, and (5) Lumber Yard Employee. The manuals are consumable, most pages containing problems and accompanying diagrams or necessary data. The mathematical content of the units is basic computation and elementary geometry. (SD)

0417 ED 116 932
Mahaffey, Michael L. McKillip, William D.
Career Oriented Mathematics, Teacher's Manual. [Includes Scale; Apprenticeship: Learning to be a Cement Mason; Textiles; Being Self-Employed: Harvesting and Sale of Pulpwood; and Lumber Yard Employee.]
Berrien County Schools, Nashville, Ga.
Spons Agency—Bureau of School Systems (DHEW/OE), Washington, D.C.; Georgia State Dept. of Education, Atlanta.
Pub Date—[75]
Note—136p.; For the accompanying student manual, see SE 019 994. Other documents in this series include SE 019 991 and 992. Occasional marginal legibility
Available from—Berrien County Board of Education, Title III, P.O. Box 473, Nashville, Georgia 31639 ($5.75, payment must accompany orders)
Pub Type— Guides - General (050)
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—*Basic Skills, *Career Education, Curriculum, Geometry, Instruction, *Instructional Materials, *Mathematical Applications, Mathematics Education, Measurement, Motivation, Secondary Education, Secondary School Mathematics, *Teaching Guides, Textbooks
Identifiers—*Career Oriented Mathematics, Elementary Secondary Education Act Title III, University of Georgia

This manual is designed for teachers using units in the Career Oriented Mathematics Program titled: (1) Scale, (2) Apprenticeship: Learning to be a Cement Mason, (3) Textiles, (4) Being Self-Employed: Harvesting and Sale of Pulpwood, and (5) Lumber Yard Employee. Lesson plans, masters for dittos and transparencies, and problem solutions are provided. (SD)

0418 ED 116 931
Mahaffey, Michael L. McKillip, William D.
Career Oriented Mathematics, Student's Manual. [Includes Owning an Automobile and Driving as a Career; Retail Sales; Measurement; and Area-Perimeter.]
Berrien County Schools, Nashville, Ga.
Spons Agency—Bureau of School Systems (DHEW/OE), Washington, D.C.; Georgia State Dept. of Education, Atlanta.
Pub Date—[75]
Note—92p.; For the accompanying teacher's manual, see SE 019 991. Other documents in this series include SE 019 993 and 994
Available from—Berrien County Board of Education, Title III, P.O. Box 473, Nashville, Georgia 31639 (1-4 copies, $4.00 ea., 5-9, $3.75 ea., 10-30, $3.50 ea., 31 or more, $3.25 ea., payment must accompany orders; Teacher Manual included with order of 30 Student Manuals)
Pub Type— Books (010)
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—*Basic Skills, *Career Education, Curriculum, Geometry, Instruction, *Instructional Materials, *Mathematical Applications, Mathematics Education, Motivation, Number Concepts, Secondary Education, *Secondary School Mathematics, Textbooks
Identifiers—*Career Oriented Mathematics, Elementary Secondary Education Act Title III, University of Georgia

This volume includes student manuals for four units in the Career Oriented Mathematics Program, which was developed to improve computational abilities and attitudes of secondary students by presenting the material in a job-relevant context. The units are titled: (1) Owning an Automobile and Driving as a Career, (2) Retail Sales, (3) Measurement, and (4) Area-Perimeter. The manuals are consumable, primarily consisting of worksheets which provide both mathematical problems and information needed for their solution (tax tables, maps, inventory records, etc.). The unit on area and perimeter presents problems using lattice point displays. Practice examinations are included. (SD)

0419 ED 116 930
Mahaffey, Michael L. McKillip, William D.
Career Oriented Mathematics, Teacher's Manual. [Includes Mastering Computational Skill: A Use-Based Program; Owning an Automobile and Driving as a Career; Retail Sales; Measurement; and Area-Perimeter.]
Berrien County Schools, Nashville, Ga.
Spons Agency—Bureau of School Systems (DHEW/OE), Washington, D.C.; Georgia State Dept. of Education, Atlanta.
Pub Date—[75]
Note—173p.; For the accompanying student manual, see SE 019 992. Other documents in this series include SE 019 993 and 994
Available from—Berrien County Board of Education, Title III, P.O. Box 473, Nashville, Georgia 31639 ($5.75, payment must accompany orders)
Pub Type— Guides - General (050)
EDRS Price - MF01/PC07 Plus Postage.
Descriptors—*Basic Skills, *Career Education, Curriculum, Instruction, *Instructional Materials, *Mathematical Applications, Mathematics Education, Motivation, Number Concepts, Secondary Education, Secondary School Mathematics, *Teaching Guides, Textbooks
Identifiers—*Career Oriented Mathematics, Elementary Secondary Education Act Title III, University of Georgia

This manual is designed for teachers using the Career Oriented Mathematics units on owning an automobile and driving as a career, retail sales, measurement, and area-perimeter. The volume begins with a discussion of the philosophy and scheduling of the program which is designed to improve students' attitudes and ability in computation by approaching the material in a career-relevant context. Lesson plans and ditto masters for diagnostic tests and worksheets are provided. (SD)

0420 ED 112 079
BO-CEC Math Resource Guide; Grades 7-9.
Colorado State Univ., Ft. Collins. Dept. of Vocational Education.
Spons Agency—Bureau of Adult, Vocational, and Technical Education (DHEW/OE), Washington, D.C.
Pub Date—[75]
Contract—OEC-0-73-5230
Note—296p.; Some illustrations may not reproduce

due to the smallness of the type; For related documents, see CE 004 842-847

Pub Type— Guides - General (050)

EDRS Price - MF01/PC12 Plus Postage.

Descriptors—*Business Education, *Career Education, Career Exploration, Class Activities, Curriculum Enrichment, *Curriculum Guides, Grade 7, Grade 8, Grade 9, Instructional Materials, Learning Activities, Mathematics, *Mathematics Instruction, Mathematics Materials, Office Occupations Education, Secondary Education, *Secondary School Mathematics, Simulation, Teaching Guides, Unit Plan

Identifiers—Business and Office Career Education Curriculum, Project BO CEC

The purpose of the units in the guide is to supplement, enrich, and reinforce the usual classroom instruction in seventh through ninth grade mathematics, and at the same time, introduce career education. The 14 resource units are not designed to be the primary teaching device for the math topics with which they deal. Each unit emphasizes an occupational setting (such as communications, industry, public services organizations, transportation industry, etc.) and a specific occupation within that setting. The purpose is to give students a chance to explore various business and office occupations while gaining insight into how and why a knowledge of mathematics is important in everyday work life. The resource units may be adapted to fit an individual school's special objectives; the units have been designed so that activities may be added or deleted. The first one or two pages of each unit gives the purpose, briefly describes the major activities, and suggests procedures. A general information sheet provides teachers with background information about the occupation described in the unit. Teacher's keys provide answers to a simulation activity and provide suggestions for related discussions. The student materials for the major activities are located at the end of each unit. (Author/AJ)

0421 ED 110 696

Dickson, Helen K., Comp.

You and the Work World of Math: Packets of Mathematics with Career Orientation.

South Dakota Career Education Project, Watertown.

Note—8p.; Not available in hard copy due to marginal reproducibility of original document

Pub Type— Reports - Research (143)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Elementary Secondary Education, *Instructional Materials, Learning Activities, *Mathematical Applications, Mathematical Enrichment, *Mathematics, *Mathematics Materials, *Relevance (Education)

The collection of projects and exercises is designed to acquaint students with some practical applications of mathematics. The exercises are of varying length, and are oriented about the following topics and projects: home landscaping; architectural home planning; construction; home food production; personal income; banking; spending (budgeting, catalog shopping, home furnishing, comparative home shopping, and quantity purchasing); vacation planning; and opinion polling. (PR)

0422 ED 107 896

[Secondary Career Education Activities: Mathematics.]

Radford City Schools, Va.

Spons Agency—Office of Education (DHEW), Washington, D.C.

Bureau No.—V361010L

Grant—OEG-0-73-2990

Note—31p.; For related documents, see CE 003 996-CE 004 006 and CE 004 008-010

Available from—Kuhn Barnett Elementary School, 4th and Pendleton Streets, Radford, Virginia, 24141 (K-3 (39 units) $5.00; 4-7 (42 units) $5.00; Special Education (18 units) $5.00; 8-12 (107 units) $10.00)

Pub Type— Guides - General (050)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—*Career Education, *Curriculum Guides, Integrated Curriculum, Mathematical Applications, *Mathematics Curriculum, Occupations, Resource Materials, *Secondary Education, *Secondary School Curriculum, Secondary School Mathematics, Units of Study

Identifiers—*Radford Career Education Program

The guide is one of a series developed in a pilot project to integrate career education concepts with subject matter in secondary grades. The units are designed to reveal career orientation aspects of traditional topics within five major subject areas: English, social studies, mathematics, science, and health and physical education. The lesson plans are presented in brief outline form, but activities range from those of short duration to several weeks. All provide broad objectives, performance objectives, lesson procedures, and materials and resources in all media. The units in mathematics directed to grades 8-12 cover machinist work, transportation, buying and selling stocks, sports statistics, sales, estimation, contracting, travel, percentage, rational numbers, home maintenance and purchase, checking accounts, linear measure, computers, surveying, mathematician careers, space, architecture, psychology, vacations, pythgorean theorem, and drafting. (MDW)

0423 ED 107 825

Career Activities in Mathematics: Grades 7, 8, 9.

Boise City Independent School District, Idaho.

Spons Agency—Idaho State Dept. of Education, Boise.

Pub Date—74

Note—153p.; For related documents, see CE 003 923-5

Pub Type— Guides - General (050)

EDRS Price - MF01/PC07 Plus Postage.

Descriptors—Career Awareness, *Career Education, *Career Exploration, Careers, Class Activities, Curriculum Enrichment, *Curriculum Guides, Educational Objectives, Employment, Grade 7, Grade 8, Grade 9, *Junior High Schools, Mathematical Applications, Mathematical Concepts, *Mathematics, *Occupational Clusters, Occupational Information, Resource Materials

The career activities guide in mathematics, part of an Idaho State Department of Vocational Education career exploration series for grades 7, 8, and 9, is designed as supplementary material to enrich the regular curriculum. Any one activity in the guide might be used without involving any other activities. The cross-referenced index indicates grades, subject, career cluster, occupation, and, in most instances, subject concept. Performance objectives, activity situation and steps (mainly situational mathematical problems), materials, and special recommendations are outlined for the various job titles. Career clusters included are: home economics and consumer; industrial arts; arts, crafts, and humanities; business occupations; communications and media; hospitality and recreation; environmental control; personal service; manufacturing; transportation; health occupations; public service; agriculture and natural resources; marine science; marketing and distribution; construction; and miscellaneous activities. Subject concepts involve various aspects of science such as fractions, ratios, decimals, equivalent values, ruler measurements, proportions, metric system, percentages, chart reading, scientific notation, exponents, geometry, cost formulas, graph relations, and weights and heights. (EA)

0424 ED 107 768

Jensen, Daniel

Geometry Career Unit: Junior High.

White Bear Lake Independent School District 624, Minn.

Pub Date—[73]

Note—23p.; For related documents, see CE 003 833-42 and CE 003 844-9

Pub Type— Guides - General (050)

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—*Career Development, *Career Education, *Geometry, *Instructional Materials, Junior High Schools, *Mathematical Applications, Mathematical Enrichment, *Mathematics Materials, Relevance (Education), Teacher Developed Materials

The guide, the product of an exemplary career education program for junior high school students, was developed to show how geometry can be applied to real-life career-oriented areas and to bring a practical approach to the teaching of geometry. It is designed to show how some of the theorems or postulates in geometry are used in different careers. The guide lists each of 44 postulates or theorems with an appropriate figure, explains it, and presents its possible applications to the world of work. (Author/JR)

0425 ED 107 765

Mack, William And Others

Mathematics Career Unit for Junior High School.

White Bear Lake Independent School District 624, Minn.

Pub Date—[73]

Note—27p.; For related documents, see CE 003 833-9 and CE 003 841-9

Pub Type— Guides - General (050)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Career Awareness, Career Development, *Career Education, Instructional Materials, Junior High Schools, *Learning Activities, Mathematical Enrichment, Mathematics Education, *Mathematics Instruction, *Mathematics Materials, *Occupational Information, Occupations, Relevance (Education), Skill Development

Part of an exemplary program for junior high school students, the material in the guide was developed as a supplement to existing mathematics programs. The various math skills are divided into six groups: whole numbers, decimals, fractions, percent, ratio–proportions, and area–volume. For each of the groups, three to seven different career packets are provided, each of which contains job descriptions and the math skills needed for each job. Sample career packets include: consumer, carpenter, electrician, auto mechanic, auto salesman, and sportswriter. (JR)

0426 ED 105 170

Soper, Joan, Ed.

Career Education–An Idea Book for Mathematics Teachers.

East Providence School Dept., R. I.

Pub Date—[72]

Note—33p.; For related documents, see CE 003 437-441

Pub Type— Guides - General (050)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Career Awareness, Career Development, *Career Education, Career Exploration, Elementary Secondary Education, *Guides, *Instructional Materials, Integrated Activities, *Integrated Curriculum, Interdisciplinary Approach, Learning Activities, *Mathematics, Mathematics Curriculum, Mathematics Instruction, Occupational Clusters, Teacher Developed Materials

Identifiers—Rhode Island

The book contains a series of career-oriented ideas for mathematics teachers, contributed by teachers in the East Providence Career Education Project. The ideas are the basis of the interdisciplinary contracting system for grades 7-12 in three pilot schools. They are classified by occupational clusters, which the teachers can use to incorporate their academic skill development with career exploration and development. The ideas are meant to be adapted to any grade level and incorporated into the teacher's particular teaching style, classroom organization, and student needs. The occupational clusters integrated into the mathematics curriculum are: agribusiness and natural resources, business and office, communications and media, construction, consumer and homemaking, environment, fine arts and humanities, health, hospitality and recreation, manufacturing, marine science, marketing and distribution, personal service, public service, and transportation. Each idea is numbered separately and is presented in a one- or two-sentence format. (BP)

0427 ED 105 090

Secondary Math Activities of the North Dakota Exemplary Project in Career Education. Grades 7-12.

North Dakota State Board for Vocational Education, Bismarck.

Spons Agency—Bureau of Adult, Vocational, and Technical Education (DHEW/OE), Washington, D.C.

Bureau No.—0-361-0047

Pub Date—30 Jun 73

Grant—OEG-0-70-4752(361)

Note—164p.; For other secondary level guides from this project, see CE 003 324-5, and CE 003 327-8, for elementary level guides, see CE 002 107-10, CE 002 393-4, and CE 003 322-3

Pub Type— Guides - General (050)

EDRS Price - MF01/PC07 Plus Postage.

Descriptors—Behavioral Objectives, Career Awareness, Career Development, *Career Education, *Curriculum Guides, *Integrated Curriculum, Junior High Schools, *Learning Activities, *Mathematics, Resource Materials, Resource Units, Secondary Education

The secondary math activities materials developed by the North Dakota Exemplary Project represent information that will be helpful to teachers in achieving the goals of a career education program. The guide provides a flexible framework to provide experiences that will support the learning principles needed to attain the required knowledge, attitudes, and skills essential to productive living integrated into the existing curriculum. A brief explanation is offered of career education–its definition, philosophy for the secondary level, specific secondary objectives, summary of career education objectives, and the need for career education. The needs of the students, involvement in the world of work, and classroom facilities should set the stage for the selection of resource units to be used. Within the mathematics area activities are organized by the career education elements of: self awareness, career awareness, appreciations and attitudes, economic awareness, and educational awareness. Each broad objective includes specific behavioral objectives, a suggested subject area and grade level, learning activities, suggested teaching techniques, resource materials and worksheets. Supplemental materials are appended. (Author/BP)

0428 ED 096 477

Math. [A Sample Guide for Integrating Career Education into Math].

Pottawattamie County School System, Council Bluffs, Iowa.

Pub Date—[72]

Note—30p.

Pub Type— Guides - General (050)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—*Career Education, Enrichment Activities, Instructional Materials, Mathematics, *Mathematics Materials, Resource Materials, *Teacher Developed Materials

This set of mathematics instructional materials are examples of how a teacher can integrate career education into math. Six topics related to the career education concept are featured. "Sample Math Problems" was written for a class studying about jobs in a bakery, and the problems are ones that would be encountered in a bakery. "Careers as Related to Math" is a sample of how career education can be effectively correlated and integrated into math texts (Elementary School Mathematics published by Addison-Wesley) for grades 4, 5, and 6. Occupations requiring high school or college education and/or on-the-job training are listed, and the concepts required for most math-related occupations are itemized. Other materials include an outline of concepts and enrichment materials to be used along with the Addison-Wesley textbook. "Using Math in a Department Store" is a sample lesson where the students not only learn basic questions with fractions, but they also learn that these skills are necessary to work in a department store. "Bricklayers Use Multiplication" cites four multiplication work problems. "A 'Lube' Man Uses Math" gives three job related math problems. "Do You Really Need to Study Math?" is a brief project summary. (BP)

0429 ED 096 475

Magram, Elyse And Others

Correlated Curriculum Program: An Experimental Program, Mathematics Level 1. Project No. 10006.

New York City Board of Education, Brooklyn, N.Y. Bureau of Curriculum Development.

Pub Date—May 70

Note—41p.; For related document, see CE 002 088; Portions of the document may be marginally reproducible

Pub Type— Guides - General (050)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Career Education, Curriculum Guides, Educational Media, Integrated Activities, *Interdisciplinary Approach, Job Skills, Learning Activities, Mathematical Applications, *Mathematics, *Secondary Education, Secondary School Mathematics, Simulation, *Teaching Guides, *Vocational Education

Identifiers—Correlated Curriculum Program

The Correlated Curriculum Program is a 4-year career-oriented program designed to provide a more effective educational program for the general course student, with an interdisciplinary approach to teaching. Teachers are organized into teams to plan for correlated lessons. Correlating career subjects with academic subjects serves to reinforce student learning and to improve achievement in all subjects. The document is a teacher's manual designed to assist the mathematics teacher in implementing the Mathematics Correlated with Business Careers curricula. Specific teacher and student activities are suggested and illustrated for each topic, but extensive lesson and unit plans have not been developed. Mathematical skills are developed in various simulated job situations related to six occupational areas: working in a store, in an office, in a warehouse, in a transporting company, in a service industry, and for the government. Additional, noncorrelated lessons are suggested to round out the students' mathematics education. Resources and references are listed in the appendix. (Author/AJ)

0430 ED 085 548

Pierro, Mike And Others

Geometry: Career Related Units. Teacher's Edition.

Minnesota State Dept. of Education, St. Paul. Div. of Vocational and Technical Education.; Robbinsdale Independent School District 281, Minn.

Pub Date—Jan 73

Note—270p.

EDRS Price - MF01/PC11 Plus Postage.

Descriptors—*Career Education, *Curriculum Enrichment, *Geometry, High Schools, *High School Students, Resource Units, *Unit Plan

Using six geometry units as resource units, the document explores 22 math-related careers. The authors intend the document to provide senior high school students with career orientation and exploration experiences while they learn geometry skills. The units are to be considered as a part of a geometry course, not a course by themselves. The six geometry units (right triangles and the Pythogorean theorem, polygons and their areas, parallel lines, standard constructions, volume, and circle relationships) may either be studied first or used as resource units as the student works in any of the career units: printing and the graphic arts, heavy equipment operator, fashion and apparel design, navigation, painting and paperhanging, landscape technology, carpenter, architecture and drafting, optical technician, sheet metal, engineering, machinist, cement workers, forestry, electrician, general contractor, home planning, cabinetmaking, plumbing and pipe fitting, surveyor, outdoor advertising, and space. The teacher's edition contains an answer key. (AG)

0431 ED 079 108

McHale, Thomas J. Witzke, Paul T.

A System of Instruction for Career Mathematics.

Pub Date—Dec 72

Note—19p.; Paper presented at the annual convention of the American Vocational Association, Chicago, Illinois, December 2-5, 1972

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—*Career Planning, *Curriculum, Curriculum Development, *Higher Education, Individualized Instruction, Mathematical Applications, *Mathematics Education, Program Descriptions, Secondary School Mathematics, Technical Education, *Technical Mathematics

A system of instruction for technical mathematics which utilizes programmed materials, continual diagnostic assessment, and tutoring is described. The system was developed at the Milwaukee Area Technical College. The first section of this paper states the philosophy of the project, lists the programmed texts used, enumerates special features of the project, and describes the use of the system of instruction. The second section analyzes the system of instruction, giving details on how the system works, characteristics of students enrolled in the courses, course content, student evaluation, teacher role, and typical results of the program. Section three discusses the use of the system in secondary schools, including development of a two-year technical mathematics sequence for grades 11 and 12. The final section looks into future directions for the program. (DT)

CONSUMER EDUCATION

0500 ED 180 853

Consumer Education Organization and Implementation.

Philadelphia School District, Pa. Office of Curriculum and Instruction.

Pub Date—79

Note—96p.

Available from—School District of Philadelphia, 13th and Spring Garden Streets, Philadelphia, PA 19123 ($3.00)

Pub Type— Guides - Classroom - Teacher (052) — Reference Materials - Bibliographies (131)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Audiotape Recordings, Audiovisual Aids, Bibliographies, Consumer Economics, *Consumer Education, Curriculum Development, *Educational Media, Elementary Secondary Education, Films, Games, Guides, Income, Instructional Materials, Instructional Programs, Laws, Money Management, Nutrition, Periodicals, Purchasing, *Resource Centers, Resource Materials, School Districts, Supplementary Reading Materials, Teacher Education

Identifiers—Pennsylvania (Philadelphia)

This guide lists programs and instructional materials developed by or available through the consumer education division of the Philadelphia School District. Opening sections outline skills to be developed through consumer education, specific services of the consumer education division, and various workshops and inservice programs for teachers and parents of elementary and secondary students. Three sections identify scope and sequence, concepts, and specific materials for initiating consumer education programs at three levels: kindergarten through grade six, grades seven and eight, and grades nine through 12. Another section lists 14 curriculum guides and unit guides which are available from the division's Consumer Affairs Education Resource Center. Some of the guides are in Spanish. The largest section identifies 101 textbooks, supplementary printed materials, workbooks, and spirit masters which are available through the Center. Contents of the guides include consumer mathematics, general and consumer economics, money management, employment and income, law and consumer responsibility, nutrition, and shopping skills. The guides are intended for all grade levels. Each entry includes information on author or publisher, title, recommended grade level, subject area, order number and price, and a brief description of content. Concluding sections briefly describe 123 multimedia kits, eight cassettes, 11 filmstrips, 35 games, 19 transparencies, 64 videotapes, 75 16mm films, and 10 periodicals which can be borrowed from the Center. (AV)

0501 ED 177 055

Consumer's Choice: An Interdisciplinary Approach to Consumer Education. Developed for Grades K-4.

Allegheny Intermediate Unit, Pittsburgh, Pa.

Spons Agency—Office of Education (DHEW), Washington, D.C.

Pub Date—79

Note—For related documents, see ED 164 388 and 389

Available from—Project ICE, Allegheny Intermediate Unit, Suite 1300, Two Allegheny Center, Pittsburgh, Pennsylvania 15202 (free, limited supply)

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC12 Plus Postage.

Descriptors—Civil Rights, *Concept Teaching, Consumer Economics, *Consumer Education, *Daily Living Skills, *Educational Strategies, Elementary Education, Integrated Activities, *Interdisciplinary Approach, Learning Activities, Purchasing, Social Studies, Teaching Guides

This manual suggests teaching strategies for integrating consumer education into art, language arts, mathematics, science/health, and social studies in grades K-4. The guide lists consumer education competencies, interdisciplinary structures for consumer education, and provides a chart which relates competencies to page numbers in the guide. Competencies are related to the concepts of the marketplace; legal rights, redress, and consumer law; major purchases of products and services; and special problems such as advertising and product safety. Sections for individual subject areas include the concept, competency, and sub-competency to be covered for each activity, suggested classroom activities, resources, follow-up activities, and performance indicators. In art, students draw a labor saving device, make collages of luxuries they desire and then compute the price, and design packages for new products. Some activities in language arts include interviewing people about their purchasing goals, writing letters of complaint, and consulting a telephone directory to locate agencies which benefit consumers. Mathematics students examine differences between bartering and using money, play monopoly, and prepare a shopping budget. Activities in science and health include presentations by public health officials, discussions of drugs, cigarettes, and alcohol, and examination of advertisements for unnecessary products. Social studies classes examine differences between goods and services, fill out a checklist of basic needs, and comparison shop through newspaper advertisements. Lists of relevant books, film, teaching kits, games, and resources of free material and information are included. (KC)

0502 ED 174 858

Consumer's Choice. A Manual of Supplemental Consumer Education Teaching Strategies. Developed for Grades K-4.

Allegheny Intermediate Unit, Pittsburgh, Pa.

Spons Agency—Bureau of Occupational and Adult Education (DHEW/OE), Washington, D.C. Office of Consumers' Education.

Bureau No.—564AH80135

Pub Date—79

Note—290p.

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC12 Plus Postage.

Descriptors—Academic Education, Art Activities, *Behavioral Objectives, Concept Teaching, *Consumer Education, Elementary School Mathematics, Elementary School Science, *Interdisciplinary Approach, Language Arts, *Learning Activities, Primary Education, Science Activities, Social Studies, Teaching Guides, *Teaching Methods

Designed for grades K-4, this manual contains suggested teaching strategies for infusing consumer education into the academic areas of art, language arts, mathematics, science/health, and social studies. Each of the twenty to thirty learning activities provided for each of the academic areas is based on competencies related to one of four concepts: basic economics of the market place; legal rights, redress, and consumer law; major purchases of products and services; and special problems such as advertising and product safety. Included with the learning activities are resources needed, followup activities, and student performance indicators. All together, twenty-four consumer competencies, each with several sub-competencies, are covered (e.g., "Demonstrate the use of the monetary system," and "Analyze advertising and its influence on the consumer"). A resource list is appended. (JH)

0503 ED 138 479

Course of Study for Consumer Mathematics.

Montgomery County Public Schools, Rockville, Md.

Pub Date—77

Note—220p.; Contains occasional marginal legibility in Appendices

Pub Type— Guides - General (050)

EDRS Price - MF01/PC09 Plus Postage.

Descriptors—*Consumer Education, Curriculum, *Curriculum Guides, Elementary Secondary Education, Instruction, *Mathematical Applications, Mathematics Education, *Secondary School Mathematics, Teaching Guides, Units of Study

Eleven units comprise this Consumer Mathematics course for secondary school students: Consumer Decision Making; Personal Transportation; Insurance; Credit; Banking; Investments; Income Taxes; Food, Clothing, Furniture, Appliances; Housing; Budgeting; and Travel. The introduction to the teaching guide for Consumer Mathematics includes a rationale for the course, a description of the organization of the course of study, a general statement of objectives, a recommended time schedule, a list of suggestions for implementation, and an annotated list of the three approved texts. Each of the eleven units contains the following: a statement of the purpose of the unit; instructional objectives; performance objectives; cross-references to approved texts; sample assessment measures and answers; suggestions to the teacher; a vocabulary list; a bibliography of books, periodicals, films, and kits; and appendices which include various tables and charts used with the assessment measures. (DT)

0504 ED 120 547

Herr, Nicholas K.

Timecards, Payrolls, Checks, and Bank Statements–A Math Practice Booklet.

Rutgers, The State Univ., New Brunswick, N.J. Curriculum Lab.

Spons Agency—New Jersey State Dept. of Education, Trenton. Div. of Vocational Education.

Report No.—VT-102-620

Pub Date—Feb 76

Note—58p.; For related documents, see CE 006 940-943

Available from—New Jersey Vocational-Techincal Curriculum Laboratory, Rutgers-The State University, Building 4103 Kilmer Campus, New Brunswick, New Jersey 08903

Pub Type— Books (010)

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—Banking, Business Skills, Educational Media, High School Students, *Mathematical Applications, Mathematics Curriculum, Mathematics Materials, *Money Management, Payroll Records, *Recordkeeping, Records (Forms), Secondary Education, *Vocational Education, Vocational High Schools, *Workbooks

The objective of the workbook is to provide the vocational high school student with exercises in two areas of practical mathematics. The student will practice filling out timecards, transferring the information to payroll records, using withholding tax tables correctly, and computing wages. In addition, he will learn how to manage a personal checking account by writing checks, keeping a running balance, making deposits, and reconciling a bank statement with the checkbook balance. Samples of timecards, payroll records, tax tables, checks, bank statements and similar forms are used extensively throughout the text. (RG)

0505 ED 088 996

Mathematics of Consumer Economics: Curriculum Guide.

Harlandale Independent School District, San Antonio, Tex. Career Education Center.

Spons Agency—Office of Education (DHEW), Washington, D.C.; Texas Education Agency, Austin. Dept. of Occupational Education and Technology.

Pub Date—[70]

Note—120p.

EDRS Price - MF01/PC05 Plus Postage.

Descriptors—Audiovisual Aids, *Career Education, *Consumer Economics, *Curriculum Guides, Educational Objectives, Graphs, Instructional Materials, *Mathematics, Performance Specifications, Resource Materials, *Secondary Education, Tables (Data), Teaching Methods, Units of Study

Identifiers—Texas

The purpose of this curriculum guide is to help the economics teacher in his endeavor to fulfill his teaching responsbilities. Space is provided for teachers' additions, deletions, notes, and criticisms which will be useful when the guide is revised. The guide is arranged in vertical columns relating the consumer economics curriculum concepts to: curriculum performance objectives, career concepts and performance objectives, suggested teaching methods, and audiovisual and resource materials. Following a list of sources of audiovisual aids, examples and principles of money, banking, credit, budgets and interest are given in the appendix. (DS)

0506 ED 067 289

Consumer Math 4, Mathematics: 5285.24.

Dade County Public Schools, Miami, Fla.

Pub Date—71

Note—19p.; An Authorized Course of Instruction for the Quinmester Program

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—Behavioral Objectives, *Curriculum, Instruction, *Mathematical Applications, Mathematics Education, *Objectives, *Secondary School Mathematics, *Teaching Guides, Tests

Identifiers—*Quinmester Program

The last of four guidebooks for the General Math student covers installment purchases and small loans, investments, insurance, and cost of housing. Goals and strategies for the course are given; performance objectives for computational skills and for each unit are specified. A course outline, teaching suggestions for each unit, and sample pretests and posttests are included. For other booklets in this set, see SE 014 880 and SE 014 881. (DT)

0507 ED 067 288

Consumer Math 3, Mathematics: 5285.23.

Dade County Public Schools, Miami, Fla.

Pub Date—71

Note—17p.; An Authorized Course of Instruction for the Quinmester Program

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—Behavioral Objectives, *Curriculum, Instruction, *Mathematical Applications, Mathematics Education, *Objectives, *Secondary School Mathematics, *Teaching Guides, Tests

Identifiers—*Quinmester Program

The third of four guidebooks in a non-sequential course of study for the General Math student, this booklet includes computation on personal income, income tax, and retirement income. General goals and overall strategies are given for the course, then performance objectives for computational skills and for specific topics are listed. A course outline, teaching suggestions, and sample pretests and posttests for each unit are included. For other booklets in this set, see SE 014 880 and SE 014 882. (DT)

0508 ED 067 287

Consumer Math 2, Mathematics. 5285.22.

Dade County Public Schools, Miami, Fla.

Pub Date—71

Note—17p.; An Authorized Course of Instruction for the Quinmester Program

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—Behavioral Objectives, *Curriculum, Instruction, *Mathematical Applications, Mathematics Education, *Objectives, *Secondary School Mathematics, *Teaching Guides, Tests

Identifiers—*Quinmester Program

The second of four guidebooks for the General Math student is designed to aid in developing computational skills. Topics covered include computation of interest on installment purchasing, discounts, cost of commercial transportation, balancing a budget, and using simple statistical information. A list of general goals for the course and overall strategies is given, then performance objectives are specified both for computational skills and for specific topics by the course. A course outline and teaching suggestions for each unit are included along with a skills pretest and posttest and with posttests for purchasing, transportation, and statistics. For other booklets in this set, see SE 014 881, and SE 014 882. (DT)

0509 ED 053 934

Schaum, June And Others

Consumer Education in Eighth Grade Core and Mathematics 1970. Curriculum Guide.

Palatine Community Consolidated School District 15, Ill.

Pub Date—70

Note—34p.

Available from—Community Consolidated School District 15, 505 South Quentin Road, Palatine, Illinois 60067 ($2.00)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—*Consumer Education, *Curriculum Guides, Elementary School Mathematics, *Grade 8, Instructional Materials, *Mathematical Applications, Mathematics Education, Unit Plan

This curriculum guide outlines a one-to-two week consumer education unit for eighth grade students. It was written in response to Illinois Senate Bill 977 which required that all students in grades 8-12 be given instruction in consumer education. The lessons were developed to involve the students in stating problems, writing definitions, establishing goals, and suggesting activities. Specific objectives are given for each lesson, along with some suggested student activities. The lessons included are: understanding a definition of a consumer; individual consumer goals; banking, writing checks, and simple interest; installment purchases; budgeting; and comparison of prices and discounts. (RS)

0510 ED 048 149

Consumer Mathematics. Teaching Units.

North Carolina State Board of Education, Raleigh. Dept. of Public Instruction.

Pub Date—69

Note—169p.

EDRS Price - MF01/PC07 Plus Postage.

Descriptors—*Curriculum Guides, *Mathematical Applications, *Mathematics Curriculum, *Secondary School Mathematics

GRADES OR AGES: Secondary school. SUBJECT MATTER: Consumer mathematics including–money management, transportation, probability, swindles and gyps, insurance, housing, taxes, consumer credit, banks, savings, and investments. ORGANIZATION AND PHYSICAL APPEARANCE: The guide is divided into ten parallel units, one for each of the above areas, which lists objectives, activities, and materials. It is offset printed in a hard-cover, looseleaf notebook. OBJECTIVES AND ACTIVITIES: Behavioral objectives for each unit are listed at the beginning of the unit. They are followed by lists of topics to be covered and descriptions of suggested activities. Activities are not correlated with any specific objective. Related mathematical problems and lists of suggested reading assignments are also given. INSTRUCTIONAL MATERIALS: There is a list of resources at the end of each unit which includes both printed and audiovisual materials. STUDENT ASSESSMENT: It is suggested that the behavioral objectives for each unit be used in student assessment. OPTIONS: The guide is suggestive only. It states that the teacher should feel free to add to, omit, or revise any part of it. (RT)

0511 ED 044 284

Rogler, Paul V. And Others

Wilmington Operational Mathematics, Book 2, Teacher's Edition.

Wilmington Public Schools, Del.

Spons Agency—Office of Education (DHEW), Washington, D.C. Bureau of Research.

Bureau No.—BR-9-B-069

Pub Date—69

Grant—OEG-2-9-170069-1038

Note—425p.

EDRS Price - MF04 Plus Postage. PC Not Available from EDRS.

Descriptors—*Business, Consumer Education, Instructional Materials, *Low Achievement, *Mathematics Education, *Secondary School Mathematics, Teaching Guides, Vocational Education, *Workbooks

This teacher's edition of a tenth grade general mathematics workbook attempts to show how certain mathematical skills are needed by the consumer. Each of the ten instructional units contains review exercises, practical applications, and practice problems for three levels of ability. Included are units on: (1) business forms, (2) algebra, (3) banking, (4) geometry, (5) taxes, (6) graphing, (7) data processing, (8) probability, (9) insurance, and (10) hospital work. [Not available in hardcopy due to marginal legibility of original document.] (RS)

DECIMALS

0600 ED 141 170

Rogers, Sandra

Laboratory Mathematics. Curriculum Booklet IV - Decimals.

Anderson County School District 2, Honea Path, S.C.

Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.

Pub Date—77

Note—37p.; For related documents, see SE 022 692-699; Not available in hard copy due to marginal legibility of original document

Pub Type— Guides - General (050)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—*Decimal Fractions, Educationally Disadvantaged, *Elementary School Mathematics, Elementary Secondary Education, Experiential Learning, *Fundamental Concepts, Individualized Instruction, *Instructional Materials, Laboratory Procedures, Low Achievement, Mathematics Education, *Units of Study, Worksheets

Identifiers—Elementary Secondary Education Act Title III

This booklet is one of a set of five booklets which comprise the basic curriculum for "Mathematics Laboratories for Disadvantaged Students," a nationally validated Title III ESEA project. This publication provides evaluation materials and student materials related to decimals. Topics included in this booklet are place value, addition, subtraction, multiplication, division, renaming decimals, and sizes of decimals. The project was designed for middle school students (grades 5-8). (RH)

0601 ED 123 069

Cosler, Norma, Ed.

Individualized Math Problems in Decimals. Oregon Vo-Tech Mathematics Problem Sets.

Oregon Math Education Council, Salem.; Oregon State Dept. of Education, Salem. Career and Vocational Education Section.

Pub Date—74

Note—174p.; For related documents, see SE 020 628-648

Available from—Continuing Education Publications, P.O. Box 1491, Portland, Oregon 97207

Pub Type— Guides - General (050)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—*Decimal Fractions, Individualized Instruction, *Instructional Materials, Mathematical Applications, Mathematics Education, Numbers, *Problem Sets, Secondary Education, *Secondary School Mathematics, *Vocational Education

Identifiers—*Oregon Vo Tech Math Project

THis is one of eighteen sets of individualized mathematics problems developed by the Oregon Vo-Tech Math Project. Each of these problem packages is organized around a mathematical topic and contains problems related to diverse vocations. Solutions are provided for all problems. Problems in this volume concern use of decimals and are related to the fields of real estate, clerical work, auto mechanics, aviation mechanics, welding, diesel mechanics, machine tools, drafting, industrial mechanics, electricity and hydraulics, electronics, forest products, wood products, forestry, nursing, marketing, food processing, agriculture, and wastewater technology. Several of these vocational sections in this package include problems involving money computations; computation of ratios of two decimal fractions is stressed in others. (SD)

0602 ED 120 548

Herr, Nicholas K.

Decimals and Percents--A Math Practice Booklet.

Rutgers, The State Univ., New Brunswick, N.J. Curriculum Lab.

Spons Agency—New Jersey State Dept. of Education, Trenton. Div. of Vocational Education.

Report No.—VT-102-621

Pub Date—Feb 76

Note—74p.; For related documents, see CE 006 940-943

Available from—New Jersey Vocational-Technical Curriculum Laboratory, Rutgers-The State University, Building 4103 Kilmer Campus, New Brunswick, New Jersey 08903 ($1.25)

Pub Type— Books (010)

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—Arithmetic, *Decimal Fractions, Educational Media, High School Students, *Mathematical Applications, Mathematics Curriculum, *Percentage, Secondary Education, Tests, *Vocational Education, Vocational High Schools, *Workbooks

The problems in the workbook are designed to help the vocational high school student understand and become adept at working with decimals and percents. Emphasized are the use of decimals in money and the application of percents to problems in daily living. Topics covered include: addition, subtraction, multiplication and division of decimals; the interrelationship of percents, decimals, and fractions; and the use of percents in interest and discount problems. Exercises with practical applications (called job assignments) constitute the bulk of the text. Quizzes are also included. (RG)

0603 ED 090 007

Thompson, Russ Fuller, Albert

Basic Math I, Package 01-08, Multiplication and Division Using Decimal Numerals.

Arnold Public Schools, Nebr.

Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.

Pub Date—72

Note—22p.; For related documents, see SE 017 553 through 559 and SE 017 561 through 575

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—*Decimal Fractions, Division, Grade 9, Individualized Instruction, *Instructional Materials, Multiplication, Objectives, *Secondary School Mathematics, *Teaching Guides, *Tests

Identifiers—Elementary Secondary Education Act Title III, *General Mathematics

This teacher guide is part of the materials prepared for an individualized program for ninth-grade algebra and basic mathematics students. Materials written for the program are to be used with audiovisual lessons recorded on tape cassettes. For an evaluation of the program, see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are included for each topic covered. The work in this package presents problems in multiplication and division with decimal numbers. This work was prepared under an ESEA Title III contract. (JP)

0604 ED 090 006

Thompson, Russ Fuller, Albert

Basic Math I, Package 01-07, Addition and Subtraction Using Decimal Numerals.

Arnold Public Schools, Nebr.

Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.

Pub Date—72

Note—24p.; For related documents, see SE 017 553 through 558 and SE 017 560 through 575

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—Addition, *Decimal Fractions, Fractions, Grade 9, Individualized Instruction, *Instructional Materials, Objectives, *Secondary School Mathematics, Subtraction, *Teaching Guides, *Tests

Identifiers—Elementary Secondary Education Act Title III, *General Mathematics

This teacher guide is part of the materials prepared for an individualized program for ninth-grade algebra and basic mathematics students. Materials written for the program are to be used with audiovisual lessons recorded on tape cassettes. For an evaluation of the program, see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are included for each topic covered. The work in this package reviews writing fractions as decimal numbers and presents problems on addition and subtraction of decimal numbers. This work was prepared under an ESEA Title III contract. (JP)

0605 ED 079 123

Activities with Decimals, Mathematics (Experimental): 5212.75.

Dade County Public Schools, Miami, Fla.

Pub Date—71

Note—13p.; An Authorized Course of Instruction for the Quinmester Program

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—Algorithms, Behavioral Objectives, Curriculum, *Decimal Fractions, Instruction, Mathematics Education, *Objectives, *Secondary School Mathematics, *Teaching Guides, Tests

Identifiers—*Quinmester Program

This guidebook, which sets minimum course content, is designed for the student who has acquired basic computational skills with non-negative rational numbers. The booklet covers computation skills with decimals. General goals and performance objectives, a course outline, teaching strategies, and sample test items are included. The quin is based on chapters from the text, "Essentials of Mathematics 2", by Sobel, Maletsky and Hill. A list of six additional references is provided. (DT)

0606 ED 067 290

Double-S Decimals, Mathematics: 5211.20.

Dade County Public Schools, Miami, Fla.

Pub Date—71

Note—25p.; An Authorized Course of Instruction for the Quinmester Program

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—Behavioral Objectives, *Curriculum, Instruction, Mathematics Education, Objectives, *Remedial Mathematics, *Secondary School Mathematics, *Teaching Guides, Tests

Identifiers—*Quinmester Program

The last of four guidebooks in the sequence, this booklet uses UICSM's "stretcher and shrinker" approach in developing place value, and four operations with decimals, conversion between fractions and decimals, and applications to measurement and rate problems. Overall goals, performance objectives for the course, teaching suggestions, and a suggested time schedule are included. Specific performance objectives for each topic are listed. Given is a bibliography of 16 references for enrichment and practice materials. For other booklets in the set, see SE 014 885 and SE 014 884. (DT)

0607 ED 023 885

Rahmlow, Harold F. And Others

Occupational Mathematics; Concepts of Decimals and Fractions. Report No. 16-I. Final Report.

Washington State Coordinating Council for Occupational Education, Olympia.; Washington State Univ., Pullman. Dept. of Education.

Spons Agency—Office of Education (DHEW), Washington, D.C.

Bureau No.—BR-7-0031

Pub Date—Jun 68

Grant—OEG-4-7-070031-1626

Note—63p.

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—*Arithmetic, *Decimal Fractions, *Programed Instructional Materials, *Textbooks, *Vocational Education

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should know the place value concept for decimals and be able to convert fractions whose denominations are 10, 100, or 1,000 to decimal form and write equivalent forms of integers and decimals by adding or removing zeros. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975. (EM)

0608 ED 023 884

Rahmlow, Harold F. And Others

Occupational Mathematics; Ratios and Fractions. Report No. 16-D. Final Report.

Washington State Coordinating Council for Occupational Education, Olympia.; Washington State Univ., Pullman. Dept. of Education.

Spons Agency—Office of Education (DHEW), Washington, D.C.

Bureau No.—BR-7-0031

Pub Date—Jun 68

Grant—OEG-4-7-070031-1626

Note—76p.

EDRS Price - MF01/PC04 Plus Postage.

Descriptors—*Fractions, *Programed Instructional Materials, *Ratios (Mathematics), *Textbooks, *Vocational Education

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should be able to demonstrate (1) his recognition of fractions of the form a/b where a and b are letters or positive integers less than 100, (2) knowledge of the terms numerator and denominator, (3) how shaded areas of plane figures can be represented by fractions, (4) knowledge of the relationship between a ratio and a fraction, and (5) that competency has been attained by answering four out of five multiple choice test items covering each objective. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975. (EM)

0609 ED 022 943

Rahmlow, Harold F. And Others

Occupational Mathematics; Conversion of Fractions into Decimals. Report No. 16-M. Final Report.

Washington State Coordinating Council for Occupational Education, Olympia.; Washington State Univ., Pullman. Dept. of Education.

Spons Agency—Office of Education (DHEW), Washington, D.C.

Bureau No.—BR-7-0031

Pub Date—Jun 68

Grant—OEG 4-7-070031-1626

Note—124p.

EDRS Price - MF01/PC05 Plus Postage.

Descriptors—*Arithmetic, *Decimal Fractions, *Fractions, *Programed Instructional Materials, *Textbooks, *Vocational Education

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should be able to change simple fractions into decimals by writing them as equivalent fractions with their denominator a power of 10 and fractions into decimals by dividing the numerator by the denominator. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975. (EM)

0610 ED 022 942

Rahmlow, Harold F. And Others

Occupational Mathematics; Division of Decimals. Report No. 16-L, Booklet II. Final Report.

Washington State Coordinating Council for Occupational Education, Olympia.; Washington State Univ., Pullman. Dept. of Education.

Spons Agency—Office of Education (DHEW), Washington, D.C.

Bureau No.—BR-7-0031

Pub Date—Jun 68

Grant—OEG-4-7-070031-1626

Note—90p.

EDRS Price - MF01/PC04 Plus Postage.

Descriptors—*Arithmetic, *Decimal Fractions, *Division, *Programed Instructional Materials, *Textbooks, *Vocational Education

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should be able to perform the division operation when the divisor is a decimal fraction. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975. (EM)

0611 ED 022 941

Rahmlow, Harold F. And Others

Occupational Mathematics; Division of Decimals. Report No. 16-L. Final Report.

Washington State Coordinating Council for Occupational Education, Olympia.; Washington State Univ., Pullman. Dept. of Education.

Spons Agency—Office of Education (DHEW), Washington, D.C.

Bureau No.—BR-7-0031

Pub Date—Jun 68

Grant—OEG-4-7-070031-1626

Note—131p.

EDRS Price - MF01/PC06 Plus Postage.

Descriptors—*Arithmetic, *Decimal Fractions, *Division, *Programed Instructional Materials, *Textbooks, *Vocational Education

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should be able to correctly divide decimal fractions. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975. (EM)

0612 ED 022 940

Rahmlow, Harold F. And Others

Occupational Mathematics; Multiplication of Decimals. Report No. 16-K. Final Report.

Washington State Coordinating Council for Occupational Education, Olympia.; Washington State Univ., Pullman. Dept. of Education.

Spons Agency—Office of Education (DHEW), Washington, D.C.

Bureau No.—BR-7-0031

Pub Date—Jun 68

Grant—OEG-4-7-070031-1626

Note—152p.

EDRS Price - MF01/PC07 Plus Postage.

Descriptors—*Arithmetic, *Decimal Fractions, *Multiplication, *Programed Instructional Materials, *Textbooks, *Vocational Education

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should be able to count decimal places, multiply any two decimal fractions, and round off a product to a given number of decimal places. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975. (EM)

0613 ED 022 939

Rahmlow, Harold F. And Others

Occupational Mathematics; Addition and Subtraction of Decimals. Report No. 16-J. Final Report.

Washington State Coordinating Council for Occupational Education, Olympia.; Washington State Univ., Pullman. Dept. of Education.

Spons Agency—Office of Education (DHEW), Washington, D.C.

Bureau No.—BR-7-0031

Pub Date—Jun 68

Grant—OEG-4-7-070031-1626

Note—100p.

EDRS Price - MF01/PC04 Plus Postage.

Descriptors—*Arithmetic, *Decimal Fractions, *Fundamental Concepts, *Programed Instructional Materials, *Textbooks, *Vocational Education

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should be able to add and subtract decimal numbers to other decimal numbers and to integers. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975. (EM)

DIAGNOSIS

0700 ED 182 292

Dyreson, Margaret

Math Instruction Based on Identification of Student Performance Needs. An Educational Products Information Booklet.

Florida State Dept. of Education, Tallahassee. Office of Dissemination/Diffusion.

Spons Agency—National Inst. of Education (DHEW), Washington, D.C. Dissemination and Resources Group.

Pub Date—May 79

Contract—400-76-0089

Note—28p.

Available from—Florida Linkage System, Office of Dissemination/Diffusion, Florida Department of Education, Knott Building, Tallahassee, FL 32304 ($1.00)

Pub Type— Reports - Descriptive (141)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Basic Skills, Educational Diagnosis, Inservice Teacher Education, *Instructional Materials, *Instructional Programs, *Mathematics Instruction, *Remedial Programs

Identifiers—Linking Agents, *Research and Development Utilization Program

This resource catalog is intended for the use of teachers and school administrators who wish to implement a program of mathematics instruction based on identification of student performance needs. The characteristics, objectives, and planning of such a program are discussed. Resource products are divided into the categories of teacher education, comprehensive math objectives, and math products that meet specific objectives. Program focus, grade level, and components are described. Ordering information is provided. (JD)

0701 ED 179 424

Brandau, Linda Easley, Jack

Understanding the Realities of Problem Solving in Elementary School With Practical Pointers for Teachers.

ERIC Information Analysis Center for Science, Mathematics, and Environmental Education, Columbus, Ohio.

Spons Agency—National Inst. of Education (DHEW), Washington, D.C.

Pub Date—Dec 79

Contract—400-78-0004

Note—71p.

Available from—Information Reference Center (ERIC/IRC), The Ohio State University, 1200 Chambers Rd., 3rd Floor, Columbus, OH 43212 ($2.00)

Pub Type— Guides - General (050) — Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—Computation, *Educational Resources, Elementary Education, *Elementary School Mathematics, Mathematical Concepts, Mathematics Curriculum, *Mathematics Instruction, *Problem Solving, *Teaching Methods, Teaching Skills

Identifiers—Information Analysis Products

This paper is divided into three parts. Part I connects the reality of the classroom with the idealism which arises from some of the problem solving literature. It is argued that a broader concept of problem solving is needed to provide a perspective for bridging the gap between the conceptions of problem solving in the literature and typical classroom practice. Part II examines what "problem solving" might mean in the context of the elementary school classroom. Part III considers how children can be helped to understand the non-arbitrary character of rules of arithmetic by examining the connectedness of mathematical ideas, rules, and procedures. Also included is a list of references and recommended readings, a list of specific pointers for teachers, and a conclusions section. (Author/MK)

0702 ED 170 149

MEAP Support Materials for Mathematics.

Michigan State Dept. of Education, Lansing.

Pub Date—[78]

Note—60p.

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—Achievement, *Decimal Fractions, Educational Assessment, *Fractions, Inservice Education, *Instruction, *Percentage, *Ratios (Mathematics), Secondary Education, *Secondary School Mathematics

Identifiers—*Michigan Education Assessment Program

These materials are designed to be used as a tool to in-service school personnel who may wish to improve achievement levels on the mathematics objectives as measured by the Michigan Education Assessment Program (MEAP). Four areas of mathematics instruction (fractions, decimals, ratio and proportion, and percent) have been addressed in these materials. These areas were selected because of the low attainment rates exhibited on the 7th and 10th grade MEAP. The materials were prepared to assist teachers whose students are having difficulties in one or more of these areas. The materials include an analysis of the errors students make on MEAP, diagnostic tests, and teaching suggestions. (MP)

0703 ED 142 401

Speer, William R.

A Clinical Model for Diagnosing Mathematical Deficiencies, (MD)2 Incorporating Educational Cognitive Style.

Pub Date—Apr 77

Note—40p.; Paper persented at the annual meeting of the American Educational Research Association (New York, New York, April 4-8, 1977); Contains occasional light type; Pages 15 and 16 "A Brief Guide to Cognitive Style Mapping Symbols and Their Meanings" removed due to copyright restrictions

Pub Type— Reports - Research (143)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Cognitive Development, Cognitive Style, *Educational Diagnosis, *Educational Research, Elementary Secondary Education, Flow Charts, Individualized Instruction, Instruction, *Learning Theories, *Mathematics Education, *Remedial Mathematics

The model described is designed to provide the educational diagnostician with data relative to an individual's content deficiencies in mathematics, mathematics cognitive style, and educational cognitive style. A diagnosis of these three factors requires consideration of cognitive, affective, and psychomotor concerns. The diagnostic mapping of an individual includes personality factors as well as mathematical strengths and weaknesses. This mapping is used in conjunction with a mapping of available instructional resources in order to prescribe an effective remedial mathematics procedure. (Author/SD)

0704 ED 141 987

Mauser, August J.

A Performance Based Diagnostic Education Package for Teachers to Develop the Concept of Time and Telling Time in Learning Disabled Children.

Pub Date—73

Note—41p.; Best Available Copy; Some print marginal and may not reproduce well

Available from—Department for Exceptional Children, 100 North First Street, Springfield, Illinois 62777

Pub Type— Guides - General (050)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—*Arithmetic, *Competency Based Education, Elementary Education, Learning Activities, *Learning Disabilities, *Monetary Systems, Number Concepts, *Teaching Guides, *Time

Intended for teachers of learning disabled children, the performance based learning package provides a list of steps for students to take toward obtaining competency in time and time telling. The package is broken down into eight milestones which include such steps as constructing a simple sundial as a group project, understanding that 15 minutes are equal to one quarter hour, and using A.M. and P.M. correctly when telling or writing time. The bulk of the document consists of appended materials which include the following: an outline of materials needed for each unit; an evaluation sheet; a list of suggestions for making arithmetic meaningful for students in grades 1 through 6; a program for teaching money concepts; and sample money problem worksheets. (SBH)

0705 ED 098 254

Babikian, Elijah Buchanan, Aaron

Developing a System of Criterion Referenced Assessment-Reteaching Cycles in Textbook Supported Mathematics Instruction.

Southwest Regional Laboratory for Educational Research and Development, Los Alamitos, Calif.

Pub Date—[Apr 74]

Note—22p.; Paper presented at the Annual Meeting of the American Educational Research Association (Chicago, Illinois, April 1974)

Pub Type— Speeches/Meeting Papers (150)

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—Content Analysis, *Criterion Referenced Tests, *Elementary School Mathematics, Feedback, *Mathematics Instruction, Mathematics Materials, *Models, Performance Criteria, *Textbooks

A system for developing assessment-reteaching cycles referenced to instructional outcomes is projected to enhance the effectiveness of elementary school mathematics textbooks. Salient precycle and paracycle features of the system are outlined. Procedures and activities to set the stage for instructional cycling are described, such as: translating the substance of activities provided in a mathematics textbook into instructional outcomes and performance modes, partitioning serially listed outcomes into 20-25 units, and developing criterion exercises for selected outcomes and performance modes in each unit. (Author)

0706 ED 086 743

Colvin, Dan

Improved Learning Practices Through Diagnosis of Individual Pupil Needs, Prescription and Implementation for Fulfilling Those Needs. (COLAMDA Project.)

Regional Center for Pre-Coll. Mathematics, Denver, Colo.

Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.; Colorado State Dept. of Education, Denver.

Pub Date—May 73

Note—234p.

EDRS Price - MF01/PC10 Plus Postage.

Descriptors—Course Objectives, Diagnostic Tests, *Formative Evaluation, Individualized Instruction, *Low Achievement, Mathematics Curriculum, Mathematics Instruction, *Remedial Mathematics, *Secondary School Mathematics, Testing Programs, *Tests

Identifiers—Elementary Secondary Education Act Title III, *Project COLAMDA

A complete mathematics testing program, involving diagnosis, prescription, and implementation, was developed by the Committee of Low-Achievers in Mathematics, Denver Area (COLAMDA), for use with low achievers in grades 7-12. A complete set of performance objectives serves as the course outline. Seventy-nine pretests and post-tests, covering whole numbers, decimals, fractions and percentages, determines student mastery of the objectives. (These tests and accompanying keys form a major part of this document). A computer is used to rapidly identify student deficiencies. The mathematics laboratory is the vehicle which introduces COLAMDA's innovative teaching strategies. Individualized instruction is accomplished through various fluid grouping techniques. Positive change in student and teacher attitude, as well as mathematical progress, is an integral part of evaluation of COLAMDA. For related information, see TM 003 415. (NE)

0707 ED 086 559

Aceto, John D.

Diagnostic Feedback System, Mathematics.

Racine Unified School District 1, Wis.

Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.

Pub Date—[72]

Note—132p.

EDRS Price - MF01/PC06 Plus Postage.

Descriptors—Achievement, *Diagnostic Tests, *Educational Diagnosis, *Elementary School Mathematics, Evaluation, Guides, *Instruction, Instructional Materials, Remedial Mathematics, Teaching Methods

Identifiers—Elementary Secondary Education Act Title III

Described is a program designed to help elementary teachers of grades three through seven diagnose their students' mathematical competencies. This document is a package containing guides for a 14-day review of previous material for each grade level. Objectives and teaching strategies for daily lessons are detailed. Following the review, a diagnostic test is provided. An item analysis of the test is prepared by child, classroom, school and district and returned to the teachers in the school system where this program was developed and implemented. Standardized subtests in computation showed a marked increase in grades where the system was operating, while other areas of the curriculum were experiencing falling scores. This work was prepared under an ESEA Title III contract. (JP)

0708 ED 069 496
Lankford, Francis G., Jr.
Some Computational Strategies of Seventh Grade Pupils. Final Report.
Virginia Univ., Charlottesville. School of Education.
Spons Agency—National Center for Educational Research and Development (DHEW/OE), Washington, D.C.
Bureau No.—BR-2-C-013
Pub Date—Oct 72
Grant—OEG-3-72-0035
Note—96p.
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—*Algorithms, *Computation, Fractions, Grade 7, Learning, *Mathematics Education, *Research, Secondary School Mathematics, Whole Numbers
Identifiers—Diagnostic Interviews

One hundred seventy-six seventh grade students underwent a recorded interview where each was given a set of computational exercises and asked to say aloud his thinking as he worked them. The most frequently used strategies in computations with whole numbers and fractions are described in detail, an analysis of the nature of wrong answers is included, and characteristics of good and poor computers are listed and discussed. Thirteen conclusions are given, covering computational strategies, vertical vs. horizontal problem arrangement, mathematical vocabulary of students, estimating answers, and the technique of using recorded interviews in research. The computation problems given to the students are included in the report, and the appendices list all the wrong answers given with the accompanying verbal description by the student. (DT)

0709 ED 062 174
Harsh, J. Richard
Diagnostic Mathematics [Form A, Form B, and Test Manual].
Fort Worth Independent School District, Tex.; National Consortia for Bilingual Education, Fort Worth, Tex.
Spons Agency—Office of Education (DHEW), Washington, D.C.
Pub Date—[72]
Note—36p.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Achievement Tests, *Arithmetic, Diagnostic Tests, Grade 9, Grade 10, *Secondary School Mathematics, Student Evaluation, Tests

These materials consist of a test manual and two forms of the test with corresponding answer keys. The test provides a measure of the conventional sequence of arithmetic computation and selected applications. Each form consists of 44 completion items, with space for figuring. It is claimed that this type of response greatly reduces the guessing effect. (MM)

ENRICHMENT

0800 ED 175 702
Schaaf, William L., Ed.
Reprint Series: Geometry, Measurement and Experience. RS-15.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—69
Note—59p.; For related documents, see SE 028 676-689
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Curriculum, *Enrichment, *Geometry, *Instruction, *Mathematical Applications, Mathematics Education, Secondary Education, *Secondary School Mathematics, Supplementary Reading Materials
Identifiers—*Proof (Mathematics), *School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series makes available expository articles which appeared in a variety of mathematical periodicals. Topics covered include: (1) geometry and experience; (2) geometry and empirical science; (3) physical geometry; (4) dimension; and (5) curves. (MP)

0801 ED 175 701
Schaaf, William L., Ed.
Reprint Series: Infinity. RS-14.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—69
Note—62p.; For related documents, see SE 028 676-690
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Curriculum, *Enrichment, *Instruction, *Mathematical Applications, Mathematics Education, *Number Concepts, *Numbers, Secondary Education, *Secondary School Mathematics, Supplementary Reading Materials
Identifiers—*School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series makes available expository articles which appeared in a variety of mathematical periodicals. Topics covered include: (1) is there an infinity; (2) infinity and its presentation at the high school level; (3) the hierarchy of infinities and the problems it spawns; and (4) the motionless arrow. (MP)

0802 ED 175 700
Schaaf, William L., Ed.
Reprint Series: Finite Geometry. RS-13.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—69
Note—47p.; For related documents, see SE 028 676-690
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Congruence, Curriculum, *Enrichment, *Geometry, *Instruction, Mathematics Education, Secondary Education, *Secondary School Mathematics, Supplementary Reading Materials
Identifiers—*Modular Arithmetic, *School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series makes available expository articles which appeared in a variety of mathematical periodicals. Topics covered include: (1) four finite geometries; (2) miniature geometries; (3) a coordinate approach to the 25-point miniature geometry; and (4) 25-point geometry. (MP)

0803 ED 175 699
Schaaf, William L., Ed.
Reprint Series: Memorable Personalities in Mathematics - Twentieth Century. RS-12.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—69
Note—54p.; For related documents, see SE 028 676-690
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Curriculum, *Enrichment, *History, *Instruction, *Mathematicians, Mathematics Education, *Modern Mathematics, Secondary Education, *Secondary School Mathematics, Supplementary Reading Materials
Identifiers—*School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series makes available expository articles which appeared in a variety of mathematical periodicals. Topics covered include: (1) Srinivasa Ramanujan; (2) Minkowski; (3) Stefan Banach; (4) Alfred North Whitehead; (5) Waclaw Sierpinski; and (6) J. von Neumann. (MP)

0804 ED 175 698
Schaaf, William L., Ed.
Reprint Series: Memorable Personalities in Mathematics: Nineteenth Century. RS-11.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—69
Note—61p.; For related documents, see SE 028 676-690
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Curriculum, *Enrichment, *History, *Instruction, *Mathematicians, Mathematics Education, *Modern Mathematics, Secondary Education, *Secondary School Mathematics, Supplementary Reading Materials
Identifiers—*School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series makes available expository articles which appeared in a variety of mathematical periodicals. Topics covered include: (1) Laplace; (2) Carl Friedrich Gauss; (3) Wolfgang and Johann Bolyai; (4) Evariste Galois; and (5) Josiah Willard Gibbs. (MP)

0805 ED 175 697
Schaaf, William L., Ed.
Reprint Series: Geometric Constructions. RS-10.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—67
Note—46p.; For related documents, see SE 028 676-690
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Curriculum, *Enrichment, *Geometric Concepts, *Geometry, *Instruction, Mathematics Education, Secondary Education, *Secondary School Mathematics, Supplementary Reading Materials
Identifiers—*Geometric Constructions, *School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. The series makes available expository articles which appeared in a variety of mathematical periodicals. Topics covered include: (1) Euclidean constructions; (2) the geometry of the fixed compass; (3) certain topics related to constructions with straightedge and compasses; and (4) unorthodox ways to trisect a line segment. (MP)

0806 ED 175 696
Schaaf, William L., Ed.
Reprint Series: The Golden Measure. RS-9.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—67
Note—50p.; For related documents, see SE 028 676-690
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Curriculum, *Enrichment, *Geometry, *History, *Instruction, Mathematics Education, Measurement, *Number Concepts, Secondary Education, *Secondary School Mathematics, Supplementary Reading Materials
Identifiers—*School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series makes available expository articles which appeared in a variety of mathematical periodicals. Topics covered include: (1) the golden section; (2) the geometry of the pentagon and the golden section; (3) meet Mr. Tau; and (4) the golden section, Phyllotaxis, and Wythoff's game. (MP)

0807 ED 175 695
Schaaf, William L., Ed.
Reprint Series: Mathematics and Music. RS-8.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—67
Note—28p.; For related documents, see SE 028 676-690
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Curriculum, *Enrichment, *Fine Arts, *Instruction, Mathematics Education, *Music, *Number Concepts, Secondary Education, *Secondary School Mathematics, Supplementary Reading Materials
Identifiers—*School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series makes available expository articles which appeared in a variety of mathematical periodicals. Topics covered include: (1) the two most original creations of the human spirit; (2) mathematics of music; (3) numbers and the music of the east and west; and (4) Sebastian and the Wolf. (MP)

0808 ED 175 694
Schaaf, William L., Ed.
Reprint Series: Computation of Pi. RS-7.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—67
Note—37p.; For related documents, see SE 028 676-690
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Curriculum, *Enrichment, *History, *Instruction, Mathematics Education, *Number Concepts, Secondary Education, *Secondary School Mathematics, Supplementary Reading Materials
Identifiers—*School Mathematics Study Group, *Summation (Mathematics)

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series makes available expository articles which appeared in a variety of mathematical periodicals. Topics covered include: (1) the latest about pi; (2) a series useful in the computation of pi; (3) an ENIAC determination of pi and e to more than 2,000 decimal places; (4) the evolution of extended decimal approximations to pi; and (5) the calculation of pi to 100,265 decimal places. (MP)

0809 ED 175 693
Schaaf, William L., Ed.
Reprint Series: Nature and History of Pi. RS-6.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—67
Note—52p.; For related documents, see SE 028 676-690
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Curriculum, *Enrichment, *History, *Instruction, Mathematics Education, *Number Concepts, *Probability, Secondary Education, *Secondary School Mathematics, Supplementary Reading Materials
Identifiers—*School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series makes available expository articles which appeared in a variety of mathematical periodicals. Topics covered include: (1) the history of the number pi; (2) what's new about pi; (3) the number pi; (4) pi and probability; and (5) from the Great Pyramid to Eniac. (MP)

0810 ED 175 692
Schaaf, William L., Ed.
Reprint Series: Space, Intuition and Geometry. RS-5.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—67
Note—59p.; For related documents, see SE 028 676-690
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Curriculum, *Enrichment, *Geometric Concepts, *Geometry, *History, *Instruction, Mathematics Education, Secondary Education, *Secondary School Mathematics, Supplementary Reading Materials
Identifiers—*School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series makes available expository articles which appeared in a variety of mathematical periodicals. Topics covered include: (1) Helmholtz and the nature of geometrical axioms; (2) the straight line; (3) geometry and intuition; and (4) the curvature of space. (MP)

0811 ED 175 691
Schaaf, William L., Ed.
Reprint Series: Mascheroni Constructions. RS-4.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—67
Note—39p.; For related documents, see SE 028 676-690
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Curriculum, *Enrichment, *Geometric Concepts, *Geometry, *Instruction, Mathematics Education, Secondary Education, *Secondary School Mathematics, Supplementary Reading Materials
Identifiers—*Geometric Constructions, *School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series makes available expository articles which appeared in a variety of mathematical periodicals. Topics covered include: (1) a forerunner of Mascheroni; (2) Mascheroni constructions; and (3) can we outdo Mascheroni. (MP)

0812 ED 175 690
Schaaf, William L., Ed.
Reprint Series: What is Contemporary Mathematics. RS-3.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—66
Note—41p.; For related documents, see SE 028 676-690
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Curriculum, *Enrichment, *Instruction, *Logic, *Mathematical Applications, Mathematics Education, *Modern Mathematics, Secondary Education, *Secondary School Mathematics, Supplementary Reading Materials
Identifiers—*School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series makes available expository articles which appeared in a variety of mathematical periodicals. Topics covered include: (1) the nature of mathematics; (2) mathematical inutility and the advance of science; and (3) logic. (MP)

0813 ED 175 689
Schaaf, William L., Ed.
Reprint Series: Prime Numbers and Perfect Numbers. RS-2.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—66
Note—44p.; For related documents, see SE 028 676-690
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Algebra, Curriculum, *Enrichment, *Instruction, Mathematics Education, *Number Concepts, *Prime Numbers, Secondary Education, *Secondary School Mathematics, Supplementary Reading Materials
Identifiers—*School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series makes available expository articles which appeared in a variety of mathematical periodicals. Topics covered include: (1) the prime numbers; (2) mathematical sieves; (3) the factorgram; and (4) perfect numbers. (MP)

0814 ED 175 688
Schaaf, William L., Ed.
Reprint Series: Structure of Algebra. RS-1.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—66
Note—45p.; For related documents, see SE 028 677-690
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Algebra, Curriculum, *Enrichment, *History, *Instruction, Mathematics Education, *Number Systems, Secondary Education, *Secondary School Mathematics, Supplementary Reading Materials
Identifiers—*School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series makes available expository articles which appeared in a variety of mathematical periodicals. Topics covered include: (1) axioms in algebra; (2) the foundations of algebra; and (3) noncommutative algebra. (MP)

0815 ED 175 687
Osborne, Marian M.
Supplementary and Enrichment Series: The Mathematics of Trees and Other Graphs. SP-29.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—68
Note—36p.; For related documents, see SE 028 648-674; Contains occasional light and broken type
Pub Type— Guides - Classroom - Learner (051) — Collected Works - Serials (022)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Curriculum, *Enrichment, *Geometric Concepts, *Graphs, *Instruction, Mathematics Education, Secondary Education, *Secondary School Mathematics, Supplementary Reading Materials, *Topology
Identifiers—*School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series is designed to make material for the study of topics of special interest to students readily accessible in classroom quantity. Topics covered include planar graphs, chains, and trees. (MP)

0816 ED 175 686
Wolf, Frank L.
Supplementary and Enrichment Series: Order and the Real Numbers a Guided Tour. SP-28.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—68
Note—40p.; For related documents, see SE 028 648-675; Contains occasional light and broken type
Pub Type— Guides - Classroom - Learner (051) — Collected Works - Serials (022)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Curriculum, Decimal Fractions, *Enrichment, *Instruction, Mathematics Education, *Number Concepts, *Number Systems, *Rational Numbers, Secondary Education, *Secondary School Mathematics, Supplementary Reading Materials
Identifiers—*School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series is designed to make material for the study of topics of special interest to students readily accessible in classroom quantity. Topics covered include natural numbers, positive integers, sets, well ordering, lower bound, upper bound, rational numbers, repeating decimals, real numbers, complete number systems, and irrational numbers. (MP)

0817 ED 175 685
Scheid, Francis J., Ed.
Supplementary and Enrichment Series: 1+1=?. SP-27.
Stanford Univ., Calif. School Mathematics Study Group
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—66
Note—103p.; For related documents, see SE 028 648-675; Contains occasional light and broken type
Pub Type— Guides - Classroom - Learner (051) — Collected Works - Serials (022)
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—Curriculum, *Enrichment, *Games, *Instruction, *Mathematical Applications, Mathematics Education, *Puzzles, Secondary Education, *Secondary School Mathematics, Supplementary Reading Materials
Identifiers—*School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series is designed to make material for the study of topics of special interest to students readily accessible in classroom quantity. Topics covered include the basic rules of sequence arithmetic, elementary strategy, intermediate strategy, and advanced strategy. (MP)

0818 ED 175 684
Bridgess, M. Philbrick, Ed.
Supplementary and Enrichment Series: The Mathematical Theory of the Struggle for Life. SP-26.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—66
Note—35p.; For related documents, see SE 028 658-675; Contains occasional light and broken type
Pub Type— Guides - Classroom - Learner (051) — Collected Works - Serials (022)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Biological Sciences, Curriculum, *Enrichment, *Environment, *Instruction, *Mathematical Applications, Mathematics Education, *Population Growth, Secondary Education, *Secondary School Mathematics, Supplementary Reading Materials
Identifiers—*School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series is designed to make material for the study of topics of special interest to students readily accessible in classroom quantity. Topics covered include the simplest version of the growth of a single population, a more realistic model of one population, and one species preying on another. (MP)

0819 ED 175 683
Bridgess, M. Philbrick, Ed.
Supplementary and Enrichment Series: Absolute Value. Teachers' Commentary. SP-25.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—66
Note—48p.; For related documents, see SE 028 648-675; Contains occasional light and broken type
Pub Type— Guides - Classroom - Teacher (052) — Collected Works - Serials (022)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Algebra, Curriculum, *Curriculum Guides, Enrichment, Graphs, *Instruction, Mathematics Education, *Number Concepts, Secondary Education, *Secondary School Mathematics
Identifiers—*Complex Numbers, *School Mathematics Study Group

This is one in a series of manuals for teachers using SMSG high school supplementary materials. The pamphlet includes commentaries on the sections of the student's booklet, answers to the exercises, and sample test questions. Topics covered include addition and multiplication in terms of absolute value, graphs of absolute value in the Cartesian plane, absolute value and quadratic expressions, complex numbers, and vectors. (MP)

0820 ED 175 682

Bridges, M. Philbrick, Ed.

Supplementary and Enrichment Series: Absolute Value. SP-24.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—66

Note—43p.; For related documents, see SE 028 648-675; Contains occasional light and broken type

Pub Type— Guides - Classroom - Learner (051) — Collected Works - Serials (022)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—*Algebra, Curriculum, *Enrichment, *Graphs, *Instruction, Mathematics Education, *Number Concepts, Secondary Education, *Secondary School Mathematics, Supplementary Reading Materials

Identifiers—*School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series is designed to make material for the study of topics of special interest to students readily accessible in classroom quantity. Topics covered include absolute value, addition and multiplication in terms of absolute value. graphs of absolute value in the Cartesian plane, absolute value and quadratic expressions, and absolute value, complex numbers, and vectors. (MP)

0821 ED 175 681

Clark, Ronald J., Ed.

Supplementary and Enrichment Series: Radioactive Decay. SP-23.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—65

Note—17p.; For related documents, see SE 028 648-675; Contains occasional light and broken type

Pub Type— Guides - Classroom - Learner (051) — Collected Works - Serials (022)

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—Curriculum, *Enrichment, *Instruction, *Mathematical Applications, Mathematics Education, *Physics, *Radiation, Secondary Education, *Secondary School Mathematics, Supplementary Reading Materials

Identifiers—*School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series is designed to make material for the study of topics of special interest to students readily accessible in classroom quantity. Topics covered include the law of decay, relative rate of change, and a general solution. (MP)

0822 ED 175 680

Calloway, Jean M., Ed.

Supplementary and Enrichment Series: Systems of First Degree Equations in Three Variables. Teachers' Commentary. SP-22.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—65

Note—49p.; For related documents, see SE 028 648-675; Contains occasional light and broken type

Pub Type— Guides - Classroom - Teacher (052) — Collected Works - Serials (022)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—*Algebra, *Analytic Geometry, Curriculum, *Curriculum Guides, Enrichment, *Graphs, *Instruction, Mathematics Education, Secondary Education, *Secondary School Mathematics

Identifiers—*School Mathematics Study Group

This is one in a series of manuals for teachers using SMSG high school supplementary materials. The pamphlet includes commentaries on the sections of the student's booklet, answers to the exercises, and sample test questions. Topics covered include the coordinate system, distance formula, planes and first degree equations in three variables, the graph of a first degree equation in three variables, intersecting planes, and parametric equations. (MP)

0823 ED 175 679

Calloway, Jean M., Ed.

Supplementary and Enrichment Series: Systems of First Degree Equations in Three Variables. SP-21.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—65

Note—44p.; For related documents, see SE 028 648-675; Contains occasional light and broken type

Pub Type— Guides - Classroom - Learner (051) — Collected Works - Serials (022)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—*Algebra, *Analytic Geometry, Curriculum, *Enrichment, *Graphs, *Instruction, Mathematics Education, Secondary Education, *Secondary School Mathematics, Supplementary Reading Materials

Identifiers—*School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series is designed to make material for the study of topics of special interest to students readily accessible in classroom quantity. Topics covered include a three dimensional coordinate system, distance formula, the equation of a plane, first degree equations in three variables, systems of first degree equations in three variables, and the line of intersection of two intersecting planes. (MP)

0824 ED 175 678

Syer, Henry W., Ed.

Supplementary and Enrichment Series: Mathematical Systems. Teachers' Commentary. SP-20.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—65

Note—46p.; For related documents, see SE 028 648-675; Contains occasional light and broken type

Pub Type— Guides - Classroom - Teacher (052) — Collected Works - Serials (022)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Curriculum, *Curriculum Guides, Enrichment, *Instruction, Mathematics Education, *Number Concepts, *Number Systems, Secondary Education, *Secondary School Mathematics

Identifiers—*Modular Arithmetic, *School Mathematics Study Group

This is one in a series of manuals for teachers using SMSG high school supplementary materials. The pamphlet includes commentaries on the sections of the student's booklet, answers to the exercises, and sample test questions. Topics covered include addition, multiplication, operations, closure, identity element, mathematical systems, mathematical systems without numbers, the counting numbers, whole numbers, and modular arithmetic. (MP)

0825 ED 175 677

Syer, Henry W., Ed.

Supplementary and Enrichment Series: Mathematical Systems. SP-19.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—65

Note—50p.; For related documents, see SE 028 648-675; Contains occasional light and broken type

Pub Type— Guides - Classroom - Learner (051) — Collected Works - Serials (022)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Curriculum, *Enrichment, *Instruction, Mathematics Education, *Number Concepts, *Number Systems, Secondary Education, *Secondary School Mathematics, Supplementary Reading Materials

Identifiers—*Modular Arithmetic, *School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series is designed to make material for the study of topics of special interest to students readily accessible in classroom quantity. Topics covered include a new kind of addition and multiplication, operations, closure, identity, mathematical systems without numbers, and modular arithmetic. (MP)

0826 ED 175 676

Syer, Henry W., Ed.

Supplementary and Enrichment Series: Factors and Primes. Teachers' Commentary. SP-18.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—65

Note—27p.; For related documents, see SE 028 648-675; Contains occasional light and broken type

Pub Type— Guides - Classroom - Teacher (052) — Collected Works - Serials (022)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Curriculum, *Curriculum Guides, Decimal Fractions, Enrichment, *Instruction, Mathematics Education, *Number Concepts, *Number Systems, *Prime Numbers, Secondary Education, *Secondary School Mathematics

Identifiers—*School Mathematics Study Group

This is one in a series of manuals for teachers using SMSG high school supplementary materials. The pamphlet includes commentaries on the sections of the student's booklet, answers to the exercises, and sample test questions. Topics covered include factors and primes, perfect numbers, divisibility, expanded notation, repeating decimals, number systems in other bases, common factors, and common multiples. (MP)

0827 ED 175 675

Syer, Henry W., Ed.

Supplementary and Enrichment Series: Factors and Primes. SP-17.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—65

Note—58p.; For related documents, see SE 028 648-675; Contains occasional light and broken type

Pub Type— Guides - Classroom - Learner (051) — Collected Works - Serials (022)

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—Curriculum, *Division, *Enrichment, *Instruction, Mathematics Education, *Number Concepts, *Prime Numbers, Secondary Education, *Secondary School Mathematics, Supplementary Reading Materials

Identifiers—*School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series is designed to make material for the study of topics of special interest to students readily accessible in classroom quantity. Topics covered include primes, factors, divisibility, greatest common factor, least common multiple, Robinson's Results, and Proth's Theorem. (MP)

0828 ED 175 674

Schurrer, Augusta L., Ed.

Supplementary and Enrichment Series: Numeration. Teachers' Commentary. SP-15.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—65

Note—34p.; For related documents, see SE 028 648-675; Contains occasional light and broken type

Pub Type— Guides - Classroom - Teacher (052) — Collected Works - Serials (022)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Curriculum, *Curriculum Guides, Enrichment, *Instruction, Mathematics Education, *Number Concepts, *Number Systems, Secondary Education, *Secondary School Mathematics

Identifiers—*Modular Arithmetic, *School Mathematics Study Group

This is one in a series of manuals for teachers using SMSG high school supplementary materials. The pamphlet includes commentaries on the sections of the student's booklet, answers to the exercises, and sample test questions. Topics covered include history of numerals, the decimal system, expanded numerals and exponential notation, numerals in base seven, computation in base seven, changing from base ten to base seven, and numerals in other bases. (MP)

0829 ED 175 673
Schurrer, Auguste L., Ed.
Supplementary and Enrichment Series: Numeration. SP-14.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—65
Note—49p.; For related documents, see SE 028 648-675; Contains occasional light and broken type
Pub Type— Guides - Classroom - Learner (051) — Collected Works - Serials (022)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Curriculum, *Decimal Fractions, *Enrichment, *Instruction, Mathematics Education, *Number Concepts, *Number Systems, Secondary Education, *Secondary School Mathematics, Supplementary Reading Materials
Identifiers—*School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series is designed to make material for the study of topics of special interest to students readily accessible in classroom quantity. Topics covered include the decimal system, exponential notation, base seven, and the binary and duodecimal systems. (MP)

0830 ED 175 672
Bridgess, Philbrick, Ed.
Supplementary and Enrichment Series: Inequalities. Teachers' Commentary. SP-13.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—64
Note—81p.; For related documents, see SE 028 648-675; Contains occasional light and broken type
Pub Type— Guides - Classroom - Teacher (052) — Collected Works - Serials (022)
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—*Algebra, Curriculum, *Curriculum Guides, Enrichment, *Graphs, *Inequalities, *Instruction, Mathematics Education, Secondary Education, *Secondary School Mathematics
Identifiers—*School Mathematics Study Group

This is one in a series of manuals for teachers using SMSG high school supplementary materials. The pamphlet includes commentaries on the sections of the student's booklet, answers to the exercises, and sample test questions. Topics covered include order on the number line, properties of order, solution of inequalities, and graphs of open sentences in two variables. (MP)

0831 ED 175 671
Bridgess, Philbrick, Ed.
Supplementary and Enrichment Series: Inequalities. SP-12.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—64
Note—66p.; For related documents, see SE 028 648-675; Contains occasional light and broken type
Pub Type-- Guides - Classroom - Learner (051) — Collected Works - Serials (022)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—*Algebra, Curriculum, *Enrichment, *Graphs, *Inequalities, *Instruction, Mathematics Education, Secondary Education, *Secondary School Mathematics, Supplementary Reading Materials
Identifiers—*School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series is designed to make material for the study of topics of special interest to students readily accessible in classroom quanitiy. Topics covered include order on the number line, properties of order, solution of inequalities, and graphs of open sentences in two variables. (MP)

0832 ED 175 670
Hill, Thomas J., Ed.
Supplementary and Enrichment Series: Plane Coordinate Geometry. Teachers' Commentary. SP-11.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—64
Note—51p.; For related documents, see SE 028 648-675; Contains occasional light and broken type
Pub Type— Guides - Classroom - Teacher (052) — Collected Works - Serials (022)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Algebra, Analytic Geometry, Curriculum, *Curriculum Guides, Enrichment, *Geometry, *Graphs, *Instruction, Mathematics Education, Secondary Education, *Secondary School Mathematics
Identifiers—*School Mathematics Study Group

This is one in a series of manuals for teachers using SMSG high school supplementary materials. The pamphlet includes commentaries on the sections of the student's booklet, answers to the exercises, and sample test questions. Topics covered include definitions, parallel and perpendicular lines, distance formula, midpoint formula, linear equations, and circles. (MP)

0833 ED 175 669
Hill, Thomas J., Ed.
Supplementary and Enrichment Series: Plane Coordinate Geometry. SP-10.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—64
Note—66p.; For related documents, see SE 028 648-675
Pub Type— Guides - Classroom - Learner (051) — Collected Works - Serials (022)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—*Algebra, *Analytic Geometry, Curriculum, *Enrichment, Geometry, *Graphs, *Instruction, Mathematics Education, Secondary Education, *Secondary School Mathematics, Supplementary Reading Materials
Identifiers—*Proof (Mathematics), *School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series is designed to make material for the study of topics of special interest to students readily accessible in classroom quantity. Topics covered include graphs, slope, distance, mid-point, proof, equations, and circles. (MP)

0834 ED 175 668
Clark, Ronald J., Ed.
Supplementary and Enrichment Series: Non-Metric Geometry. Teachers' Commentary. SP-9.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—64
Note—26p.; For related documents, see SE 028 648-675; Contains occasional light and broken type
Pub Type— Guides - Classroom - Teacher (052) — Collected Works - Serials (022)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Curriculum, *Curriculum Guides, Enrichment, *Geometric Concepts, *Geometry, *Instruction, Mathematics Education, Secondary Education, *Secondary School Mathematics, *Set Theory
Identifiers—*School Mathematics Study Group

This is one in a series of manuals for teachers using SMSG high school supplementary materials. The pamphlet includes commentaries on the sections of the student's booklet, answers to the exercises, and sample test questions. Topics covered include points, lines, space, planes, names, intersection of sets, intersection of lines and planes, segments, separations, angles, one-to-one correspondence, and simple closed curves. (MP)

0835 ED 175 667
Clark, Ronald J., Ed.
Supplementary and Enrichment Series: Non-Metric Geometry. SP-8.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—64
Note—44p.; For related documents, see SE 028 648-675; Contains occasional light type
Pub Type— Guides - Classroom - Learner (051) — Collected Works - Serials (022)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Curriculum, *Enrichment, *Geometric Concepts, *Geometry, *Instruction, Mathematics Education, Secondary Education, *Secondary School Mathematics, *Set Theory, Supplementary Reading Materials
Identifiers—*School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series is designed to make material for the study of topics of special interest to students readily accessible in classroom quantity. Topics covered include points, lines, space, planes, segments, separations, angles, one-to-one correspondence, and simple closed curves. (MP)

0836 ED 175 666
Kalman, Karl, Ed.
Supplementary and Enrichment Series: The System of Vectors. Teachers' Commentary. SP-7.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—64
Note—38p.; For related documents, see SE 028 648-675
Pub Type— Guides - Classroom - Teacher (052) — Collected Works - Serials (022)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Curriculum, *Curriculum Guides, Enrichment, *Geometry, *Instruction, *Mathematical Applications, Mathematics Education, Physics, Secondary Education, *Secondary School Mathematics
Identifiers—*School Mathematics Study Group, *Vectors (Mathematics)

This is one in a series of manuals for teachers using SMSG high school supplementary materials. The pamphlet includes commentaries on the sections of the student's booklet, answers to the exercises, and sample test questions. Topics covered include directed line segments, applications to geometry, vectors and scalars, components, inner product, applications of vectors in physics, and vectors as a formal mathematical system. (MP)

0837 ED 175 665
Kalman, Karl, Ed.
Supplementary and Enrichment Series: The System of Vectors. SP-6.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—64
Note—56p.; For related documents, see SE 028 648-675; Contains occasional light and broken type
Pub Type— Guides - Classroom - Learner (051) — Collected Works - Serials (022)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Curriculum, *Enrichment, *Geometry, *Instruction, Mathematical Applications, Mathematics Education, Secondary Education, *Secondary School Mathematics, Supplementary Reading Materials
Identifiers—*School Mathematics Study Group, *Vectors (Mathematics)

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series is designed to make material for the study of topics of special interest to students readily accessible in classroom quantity. Topics covered include directed segments, applications, components, and inner products. (MP)

0838 ED 175 664
Kalman, Karl, Ed.
Supplementary and Enrichment Series: The Complex Number System. Teachers' Commentary. SP-5.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—64
Note—62p.; For related documents, see SE 028 648-675; Contains occasional light and broken type
Pub Type— Guides - Classroom - Teacher (052) — Collected Works - Serials (022)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—*Algebra, Curriculum, *Curriculum Guides, Enrichment, Graphs, *Instruction, Mathematics Education, *Number Systems, Secondary Education, *Secondary School Mathematics
Identifiers—*Complex Numbers, *School Mathematics Study Group

This is one in a series of manuals for teachers using SMSG high school supplementary materials. The pamphlet includes commentaries on the sections of the student's booklet, answers to the exercises, and sample test questions. Topics covered include complex numbers, operations, standard form, equations, graphs and conjugates. (MP)

0839 ED 175 663
Kalman, Karl, Ed.
Supplementary and Enrichment Series: The Complex Number System. SP-4.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—64
Note—58p.; For related documents, see SE 028 648-675; Contains occasional light and broken type
Pub Type— Guides - Classroom - Learner (051) — Collected Works - Serials (022)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—*Algebra, Curriculum, *Enrichment, *Instruction, Mathematics Education, *Number Systems, Secondary Education, *Secondary School Mathematics, Supplementary Reading Materials
Identifiers—*Complex Numbers, *School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series is designed to make material for the study of topics of special interest to students readily accessible in classroom quantity. Topics covered include operations, standard form, equations, graphs, and conjugates. (MP)

0840 ED 175 662
Dubisch, Roy, Ed.
Supplementary and Enrichment Series: Functions, Circular Functions. Teachers' Commentary. SP-3.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—64
Note—59p.; For related documents, see SE 028 648-675; Contains occasional light and broken type
Pub Type— Guides - Classroom - Teacher (052) — Collected Works - Serials (022)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Curriculum, *Curriculum Guides, Enrichment, *Graphs, *Instruction, Mathematics Education, Secondary Education, *Secondary School Mathematics, *Trigonometry
Identifiers—*Functions (Mathematics), *School Mathematics Study Group

This is one in a series of manuals for teachers using SMSG high school supplementary materials. The pamphlet includes commentaries on the sections of the student's booklet, answers to the exercises, and sample test questions. Topics covered include sets, definition and graph of a function, constant, linear and absolute-value functions, composition, inversion, one-to-one functions, ordered pairs, circular motion, graphs of sine and cosine, angles, vectors, addition formulas, tables of circular functions, and waves. (MP)

0841 ED 175 661
Dubisch, Roy, Ed.
Supplementary and Enrichment Series: Circular Functions. SP-2.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—64
Note—55p.; For related documents, see SE 028 648-675; Contains occasional light and broken type
Pub Type— Guides - Classroom - Learner (051) — Collected Works - Serials (022)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Curriculum, *Enrichment, *Graphs, *Instruction, Mathematical Applications, Mathematics Education, Secondary Education, *Secondary School Mathematics, Supplementary Reading Materials, *Trigonometry
Identifiers—*Functions (Mathematics), *School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series is designed to make material for the study of topics of special interest to students readily accessible in classroom quantity. Topics covered include periodicity, graphs, angles, vectors, formulas, tables, waves, and applications. (MP)

0842 ED 175 660
Dubisch, Roy, Ed.
Supplementary and Enrichment Series: Functions. SP-1.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—64
Note—47p.; For related documents, see SE 028 649-675; Contains occasional light and broken type
Pub Type— Guides - Classroom - Learner (051) — Collected Works - Serials (022)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Curriculum, *Enrichment, *Graphs, *Instruction, Mathematics Education, Secondary Education, *Secondary School Mathematics, *Set Theory, Supplementary Reading Materials
Identifiers—*Functions (Mathematics), *School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series is designed to make material for the study of topics of special interest to students readily accessible in classroom quantity. Topics covered include: (1) graphs; (2) constant, linear, and absolute-value functions; (3) composition and inversion; (4) one-to-one functions; and (5) ordered pairs. (MP)

0843 ED 146 003
Artis, Margaret, Ed. And Others
Tools and Concepts.
Institute for Services to Education, Inc., Washington, D.C.
Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Bureau No.—BR-7-0867
Pub Date—70
Contract—OEC-0-8-070867-0001
Note—76p.; Appendix material from ED 084 936; For related documents, see SE 019 970-974
Pub Type— Guides - General (050)
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—*College Mathematics, Curriculum, Higher Education, Instruction, *Instructional Materials, *Mathematical Concepts, Mathematical Enrichment, Mathematics, Mathematics Education, Secondary School Mathematics, *Teaching Guides
Identifiers—*Thirteen College Curriculum Program

This guide provides enrichment for students to develop tools and concepts used in various areas of mathematics. The first part presents arithmetic progressions, geometric progressions, and harmonic progression. In the second section, the concept of mathematic induction is developed from intuitive induction, using concrete activities, to the principle of mathematical induction. Logarithms constitute the third section beginning with a review of laws of exponents and bases 2, 3, and 5 and concluding with common base 10 logarithms, antilogarithms, and interpolation. The final section of the guide deals with methods for introducing the slide rule (making a slide rule, parts of the slide rule, reading numbers on the slide rule, multiplying and dividing with the slide rule). The guide contains student exercises and investigations plus suggested questions and references for teacher use. (JW)

0844 ED 143 528
Faber, Norman J. And Others
Mathematics and Living Things. Teacher's Commentary. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—65
Note—182p.; For related document, see SE 023 005
Pub Type— Guides - General (050)
EDRS Price - MF01/PC08 Plus Postage.
Descriptors—*Biology, Geometric Concepts, Grade 8, *Mathematical Applications, Mathematics, Mathematics Education, Measurement, Secondary Education, *Secondary School Mathematics, *Secondary School Science, *Teaching Guides
Identifiers—*School Mathematics Study Group

Mathematics and Living Things (MALT) is designed for grade eight to enrich and supplement the usual courses of instruction. MALT utilizes exercises in biological science to derive data through which mathematical concepts and principles may be introduced and expanded. The Teacher's Commentary includes suggestions for instruction, a list of needed equipment and supplies, a list of things to do to have materials ready for each chapter, background information and a section by section discussion of each chapter, and answers to student exercises. (RH)

0845 ED 143 527
Faber, Norman J. And Others
Mathematics and Living Things. Student Text. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—65
Note—228p.; For related document, see SE 023 006; Contains occasional light and broken type
Pub Type— Books (010)
EDRS Price - MF01/PC10 Plus Postage.
Descriptors—*Biology, Geometric Concepts, Grade 8, *Instructional Materials, *Mathematical Applications, Mathematics, Measurement, Secondary Education, *Secondary School Mathematics, Secondary School Science, *Textbooks
Identifiers—*School Mathematics Study Group

This document is designed for grade eight to enrich and supplement the usual courses of instruction. Mathematics and Living Things (MALT) utilizes exercises in biological science to derive data through which mathematical concepts and principles may be introduced and expanded. Chapters included are: (1) Leaves and Natural Variation: Measurement of Length, Metric System, Ratio, and Graphing; (2) Natural Variation - "US": Addition of Measurement and Greatest Possible Error; (3) Leaf Surface Area and Water Loss: Area, Significant Numbers, Scientific Notation; (4) Muscle Fatigue: Percent; Mean, Median and Mode; Informal Extrapolation, Histogram; (5) Yeast Metabolism: Linear Graphing, Curve Fitting, Extrapolation and Interpolation, Volume of a Cylinder; (6) Growth of Mold: Rectangular Coordinates, Estimation of Area; (7) Size of Cells and Metabolism: Surface Area and Volume; and (8) Giant Trees: Formula Construction for Volume of Cylinder and Cone, Indirect Measurement. Equipment and materials needed are specified in the Commentary. (RH)

0846 ED 138 009
Cohn, Sanford J.
Individualizing Science Curricula for the Gifted.
Pub Date—76
Note—14p.; Paper presented at the Annual meeting of the National Association for Gifted Children (October 14, 1976, Kansas City, Missouri)
Pub Type— Speeches/Meeting Papers (150)
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—*Acceleration, Advanced Placement Programs, *Gifted, *Individualized Instruction, Junior High Schools, *Mathematics, *Sciences

Reported are methods of accelerating and individualizing science and mathematics curricula for extremely gifted junior high school students as developed by the Study of Mathematically Precocious Youth (SMPY) and the Intellectually Gifted

Child Study Group. Given are examples of acceleration such as allowing the student to take more advanced courses in the standard sequence, taking advanced placement courses, taking special out of class college level courses, or receiving tutoring through the Oxford-Cambridge Tutorial Preceptory System of SMPY. A question is raised regarding the amount of laboratory work that is necessary for highly gifted science students. Sources of further information are provided. (DB)

0847 ED 100 103
Gensley, Juliana T.
Teaching Gifted Children Mathematics in Grades Four Through Six.
California State Dept. of Education, Sacramento. Div. of Special Education.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—74
Note—44p.; For additional information see ED 082 415
Pub Type— Guides - General (050)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Class Activities, Concept Formation, Creative Development, *Curriculum Design, Exceptional Child Education, *Gifted, Instructional Materials, Intermediate Grades, *Mathematics, Resource Teachers, Sequential Learning, *Teaching Guides, Teaching Methods
Identifiers—Elementary Secondary Education Act Title V

Intended for teachers of gifted students in grades 4-6, the guide emphasizes the need for specialized instruction in mathematics, suggests methods for teaching mathematical facts and concepts, describes approaches and materials to develop students' understanding of mathematical principles, and explores ways to build skills and creativity. Stressed is the resource role of the mathematics specialist in diagnosing individual student needs and in planning a program to build sequential understandings and skills. Listed are mathematical facts and concepts (for sets and subsets, numbers and numeration, operations, mathematical sentences, measurement, graphs, and geometric figures) followed by suggested teaching activities such as using graph paper to diagram multiplication facts and using both a yardstick and a meter stick to measure student height. Suggested are games and experiences to help children discover and test mathematical generalizations. Recommended instructional approaches include using magic squares to develop computational skills, adapting the seminar teaching/learning style to encourage higher intellectual skills, and the discovery of alternate problem-solving methods to develop creativity. Noted is the relationship of mathematics to other subjects such as science, geography, and music and the need for coordination between mathematics specialists and teachers of gifted children at the elementary and junior high school levels. (LH)

0848 ED 092 411
Hill, Thomas J., Comp.
Mathematical Challenges II, Plus Six.
National Council of Teachers of Mathematics, Inc., Washington, D.C.
Pub Date—74
Note—122p.
Available from—National Council of Teachers of Mathematics, 1906 Association Drive, Reston, Virginia 22091
Pub Type— Books (010)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Algebra, Enrichment, Geometric Concepts, *Mathematical Enrichment, Number Concepts, Probability, *Problem Sets, *Problem Solving, *Secondary School Mathematics, Trigonometry
Identifiers—*National Council of Teachers of Mathematics

This book is a sequel to MATHEMATICAL CHALLENGES, which was published in 1965. In this sequel are 100 problems, together with their printed solutions. The problems range from those that are quite simple to those that will challenge even the most ardent problem solver, and they include examples from algebra, geometry, number theory, probability, and trigonometry. They are directed to students at the junior and senior high school levels, and with few exceptions they are taken from the pages of the MATHEMATICS STUDENT JOURNAL (recently renamed the MATHEMATICS STUDENT), a periodical publication of the National Council of Teachers of Mathematics. (JP)

0849 ED 092 380
Linville, William J. Higgins, James E.
Activities for Elementary School Mathematics Enrichment.
Indiana State Univ., Terre Haute. Curriculum Research and Development Center.
Pub Date—May 74
Note—68p.
Available from—Curriculum Research and Development Center, Jamison Hall, School of Education, Indiana State University, Terre Haute, Indiana 47809 ($1.00)
Pub Type— Guides - General (050)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—*Activities, *Elementary School Mathematics, *Enrichment Activities, Experiential Learning, Games, *Instruction, Mathematics Education, *Number Concepts, Student Attitudes, Student Motivation

This booklet is a collection of activities and games designed to supplement textbook and other instructional materials in an elementary school mathematics program. The selected activities propose to stimulate learning and enhance attitudes. Some provide practice with number facts; others explore various topics such as probability. The emphasis is on the affective domain, and the activities are not designed necessarily for mastery by all students. The purpose is pupil involvement without fear of failure. (LS)

0850 ED 082 415
Walker, Virginia
Teaching Gifted Children Mathematics in Grades One Through Three.
California State Dept. of Education, Sacramento. Div. of Special Education.
Pub Date—73
Note—46p.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Class Activities, Creative Development, *Exceptional Child Education, *Gifted, Instructional Materials, *Mathematics, *Primary Education, *Teaching Guides, Teaching Methods

Intended for teachers of the mentally gifted in grades 1 through 3, the guide distinguishes between the verbally gifted and the mathematically gifted and discusses subject matter content, development of intellectual skills and creativity, and gives teaching suggestions. Discussed are a different emphasis for the mathematically talented, the opportunities of unstructured programs, and the need for sequence and continuity. Also considered for determination of subject content are suggestions for the verbally gifted and broad applications of mathematics. Stress is put on the development of understanding, generalizations, and basic principles. Recommended for the improvement of mathematical skills are quantitative questions, open-ended problems, and individualized programs. The discovery method of teaching is encouraged for development of higher intellectual skills such as analysis-evaluation and synthesis-evaluation. A rich mathematical environment and a teacher who enjoys mathematics is suggested to develop creativity in mathematics. Mathematics instruction is seen to encourage the full development of the gifted child's human potential. Teaching suggestions include ways to use the number line, primitive number systems, nonmetric geometry with geoboards, and problem solving. (DB)

0851 ED 079 163
Dalton, LeRoy C., Ed. Snyder, Henry D., Ed.
Topics for Mathematics Clubs.
National Council of Teachers of Mathematics, Inc., Washington, D.C.
Pub Date—73
Note—106p.
Available from—NCTM, 1906 Association Drive, Reston, Virginia 22091 (No price quoted)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Algebra, *Enrichment Activities, Geometric Concepts, Instruction, *Mathematical Enrichment, Mathematics, Mathematics Education, Number Concepts, *Resource Materials, *Secondary School Mathematics, Topology

The ten chapters in this booklet cover topics not ordinarily discussed in the classroom: Fibonacci sequences, projective geometry, groups, infinity and transfinite numbers, Pascal's Triangle, topology, experiments with natural numbers, non-Euclidean geometries, Boolean algebras, and the imaginary and the infinite in geometry. Each chapter is written as a collection of related subtopics, and each includes a bibliography of references and further readings. (DT)

0852 ED 052 025
Titterton, J. Patrick
Some Meaningful Mathematics in Two Chapters: Chapter T1, The Binomial Expansion and Related Topics; Chapter T2, The Principle of Math Induction and Related Conjectures.
Syosset Central School District 2, N.Y.
Pub Date—[71]
Note—143p.
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—*Algebra, Grade 12, *Instructional Materials, Mathematical Enrichment, Mathematics, *Secondary School Mathematics, Textbooks

The author presents material suitable for use by teachers of gifted students in the junior or senior year of high school. The mathematics presented includes mathematical induction, the binomial expansion, number theory and Pascal's triangle. The author weaves much of the history of mathematics into the materials. Included are student tests and bibliographies of related materials. (CT)

0853 ED 035 543
Moore, Charles G.
An Introduction to Continued Fractions.
National Council of Teachers of Mathematics, Inc., Washington, D.C.
Pub Date—64
Note—102p.
Available from—National Council of Teachers of Mathematics, 1201 Sixteenth Street, N.W., Washington, D.C. 20036
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Fractions, History, *Instructional Materials, *Mathematical Concepts, *Mathematics, Number Concepts, Problem Solving, *Secondary School Mathematics

Provided is an introduction to the properties of continued fractions for the intellectually curious high school student. Among the topics included are (1) Expansion of Rational Numbers into Simple Continued Fractions, (2) Convergents, (3) Continued Fractions and Linear Diophantine Equations of the Type $am + bn = c$, (4) Continued Fractions and Congruences, (5) Continued Fractions and Determinants, (6) Practical Applications of Continued Fractions, (7) Continued Fractions and Quadratic Irrational Numbers, (8) Continued Fractions and Pell's Equation, (9) Initially Repeating Continued Fractions and Quadratic Equations, and (10) Initially Repeating Continued Fractions and Reduced Quadratic Irrationals. Also included are proofs that show new relationships between bits of familiar mathematics, exercises that demonstrate the properties under investigations, answers to exercises in the appendix, and historical notes on the men who first worked with continued fractions. (RP)

0854 ED 017 453
MATHEMATICS I, VOLUME 2, EXPERIMENTAL EDITION.
Secondary School Mathematics Curriculum Improvement Study, New York, N.Y.
Report No.—BR-5-0647
Pub Date—66
Note—51P.
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—*Curriculum, Curriculum Development, Curriculum Guides, *Instructional Materials, *Mathematics, Secondary School Mathematics

THIS IS VOLUME 2 OF A THREE-VOLUME EXPERIMENTAL EDITION CONTAINING A SEQUENCE OF ENRICHED MATERIALS FOR SEVENTH-GRADE MATHEMATICS. THESE MATERIALS CAN BE USED EITHER FOR A PROGRAM OF INDIVIDUALIZED INSTRUCTION FOR THE ACCELERATED STUDENT OR FOR CLASSROOM PRESENTATION BY THE TEACHER. THE PRESENTATION OF THE MATERIAL IS SUCH AS TO REFLECT CHANGES IN CONTENT, TECHNIQUE, APPROACH AND EMPHASIS. INSTRUCTIONAL UNITS ON A NUMBER OF SEQUENTIALLY RELATED TOPICS ARE DESIGNED TO INCORPORATE MODERN TERMINOLOGY WITH THE TRADITIONAL TOPICS AND TO INTRODUCE NEW CONCEPTS AS APPROPRIATE. THIS VOLUME INCLUDES MATERIALS FOR (1)

MULTIPLICATION OF INTEGERS, (2) LATTICE POINTS IN THE PLANE AND MAPPING ON Z X Z, AND (3) SETS AND RELATIONS. (RP)

0855 ED 017 452

MATHEMATICS I, VOLUME 3, EXPERIMENTAL EDITION.

Secondary School Mathematics Curriculum Improvement Study, New York, N.Y.
Report No.—BR-5-0647
Pub Date—67
Note—118P.
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—*Curriculum, Curriculum Development, Geometry, Grade 7, *Instructional Materials, *Mathematics, *Secondary School Mathematics

THIS IS VOLUME 3 OF A THREE-VOLUME EXPERIMENTAL EDITION CONTAINING A SEQUENCE OF ENRICHED MATERIALS FOR SEVENTH-GRADE MATHEMATICS. THESE MATERIALS ARE DESIGNED TO BE USED FOR A PROGRAM OF INDIVIDUALIZED INSTRUCTION FOR THE ACCELERATED STUDENT OR FOR CLASSROOM PRESENTATION BY THE TEACHER. THE PRESENTATION OF THE MATERIAL IS SUCH AS TO REFLECT CHANGES IN CONTENT, TECHNIQUE, APPROACH AND EMPHASIS. INSTRUCTIONAL UNITS ON A NUMBER OF SEQUENTIALLY RELATED TOPICS ARE DESIGNED TO INCORPORATE MODERN TERMINOLOGY WITH THE TRADITIONAL TOPICS AND TO INTRODUCE NEW CONCEPTS AS APPROPRIATE. THIS VOLUME INCLUDES MATERIALS FOR (1) TRANSFORMATIONS AND ORIENTATIONS OF THE PLANE, (2) SEGMENTS, ANGLES, AND ISOMETRIES, (3) ELEMENTARY NUMBER THEORY, (4) THE RATIONAL NUMBERS, (5) MASS POINTS, (6) SOME APPLICATIONS OF THE RATIONAL NUMBERS, AND (7) INCIDENCE GEOMETRY. (RP)

0856 ED 017 451

SEVENTH YEAR MATHEMATICS, VOLUME 1, EXPERIMENTAL EDITION.

Secondary School Mathematics Curriculum Improvement Study, New York, N.Y.
Report No.—BR-5-0647
Pub Date—66
Note—107P.
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—*Curriculum, Curriculum Development, Curriculum Guides, Grade 7, *Mathematics, Number Systems, *Secondary School Mathematics, Set Theory, *Statistics

THIS IS VOLUME 1 OF A THREE-VOLUME EXPERIMENTAL EDITION CONTAINING A SEQUENCE OF ENRICHED MATERIALS FOR SEVENTH-GRADE MATHEMATICS. THESE MATERIALS ARE DESIGNED FOR A PROGRAM OF INDIVIDUALIZED INSTRUCTION FOR THE ACCELERATED STUDENT OR FOR CLASSROOM PRESENTATION BY THE TEACHER. THE PRESENTATION OF THE MATERIAL IS IN SUCH A MANNER AS TO REFLECT CHANGES IN CONTENT, TECHNIQUE, APPROACH AND EMPHASIS. INSTRUCTIONAL UNITS ON A NUMBER OF SEQUENTIALLY RELATED TOPICS ARE STRUCTURED TO INCORPORATE MODERN TERMINOLOGY WITH THE TRADITIONAL TOPICS AND TO INTRODUCE NEW CONCEPTS AS APPROPRIATE. THIS VOLUME INCLUDES MATERIALS FOR (1) PLANNING A MATHEMATICAL PROCESS, (2) FINITE NUMBER SYSTEMS, (3) SETS AND OPERATIONS, (4) MATHEMATICAL MAPPINGS, (5) INTEGERS, AND (6) PROBABILITY AND STATISTICS. (RP)

0857 ED 013 514

ARITHMETIC ENRICHMENT IDEAS FOR GRADES 1, 2 AND 3.

Cincinnati Public Schools, Ohio.; Ohio State Dept. of Education, Columbus.
Pub Date—64
Note—30P.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Arithmetic, *Enrichment Activities, *Gifted, Grade 1, Grade 2, Grade 3, Primary Education, Special Education
Identifiers—COLUMBUS

THE DOCUMENT CONTAINS NUMEROUS SPECIFIC ACTIVITIES FOR UNDERSTANDING ELEMENTS OF THE NUMERATION SYSTEM, FUNDAMENTAL OPERATIONS, AND OTHER CONCEPTS SUCH AS TIME, FRACTIONS, AND APPROACHES TO GEOMETRY. A NUMBER OF GAMES AND PUZZLES ARE INCLUDED. THE ACTIVITIES WERE DEVELOPED BY TEACHERS AT A UNIVERSITY OF CINCINNATI WORKSHOP FOR THE IMPROVEMENT OF ARITHMETIC PROGRAMS FOR ACADEMICALLY GIFTED CHILDREN. (RM)

ENVIRONMENTAL CONCERNS

0900 ED 182 133

Briggs, John And Others

Idaho Energy Conservation Resource Guide for Mathematics, Grades 7-12.

Idaho State Dept. of Education, Boise.; Idaho State Office of Energy, Boise.

Spons Agency—Department of Energy, Washington, D.C.

Pub Date—Feb 79

Note—35p.; For related documents, see SE 029 772-778. Printed on colored background.

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Depleted Resources, *Energy Conservation, Environment, *Environmental Education, *Mathematics, Mathematics Education, Natural Resources, *Resource Materials, *Secondary Education, Social Values, *Teaching Guides

This manual is a resource guide on energy conservation for teaching mathematics from grades seven to twelve. It contains 25 student activities which are grouped into four goal oriented units. The main objectives of the project are to increase the student's understanding that: (1) Natural laws limit energy availability; (2) Energy consumption affects both man and his environment; (3) Human values and attitudes affect energy usage; and (4) Energy consumption is necessary to maintain our life style. (SB)

0901 ED 100 670

Mathematics 9-12, Environmental Education Guide.

Project I-C-E, Green Bay, Wis.

Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.; Wisconsin State Dept. of Education, Madison.

Pub Date—[74]

Note—78p.

Pub Type— Guides - General (050)

EDRS Price - MF01/PC04 Plus Postage.

Descriptors—Conservation Education, *Ecology, *Environmental Education, Instructional Materials, Interdisciplinary Approach, Learning Activities, *Mathematical Applications, Mathematics Education, Natural Resources, Outdoor Education, Science Education, Secondary Education, *Secondary School Mathematics, *Teaching Guides

Identifiers—Elementary Secondary Education Act Title III, *Project I C E

This mathematics guide, for use in grades 9-12, is one of a series of guides, K-12, that were developed by teachers to help introduce environmental education into the total curriculum. Since the nature of mathematics is abstract, students do not learn mathematics from ecology, nor ecology from mathematics. But, by observation and manipulation of environmental data, the students may inductively discover a principle in mathematics which can be reached deductively. The purpose of this booklet is to make an attempt to bridge mathematics and ecology. The guide is a supplementary handbook of ecologically-oriented mathematics exercises, designed to be self-contained and complete with answers. The exercises are built around 12 major environmental concepts that form a framework for each grade or subject area, as well as for the entire K-12 program. The problems and exercises are designed to be integrated into algebra, geometry, advanced algebra, probability, statistics, trigonometry, and analysis. Each lesson deals with a mathematical concept and its applications to an environmental problem. Further, each lesson offers subject area integration, subject area activities, interdisciplinary activities, cognitive and affective behavioral objectives, and suggested references and resource materials. (Author/TK)

0902 ED 100 669

Mathematics 8, Environmental Education Guide.

Project I-C-E, Green Bay, Wis.

Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.; Wisconsin State Dept. of Education, Madison.

Pub Date—[74]

Note—48p.

Pub Type— Guides - General (050)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Computation, Conservation Education, *Environmental Education, Geometry, Instructional Materials, Interdisciplinary Approach, Learning Activities, *Mathematical Applications, Mathematics Education, Natural Resources, Outdoor Education, *Science Education, Secondary Education, *Secondary School Mathematics, *Teaching Guides

Identifiers—Elementary Secondary Education Act Title III, *Project I C E

This eighth grade mathematics guide is one of a series of guides, K-12, that were developed by teachers to help introduce environmental education into the total curriculum. The guides are supplementary in design, containing a series of episodes (minilessons) that reinforce the relationships between ecology and mathematics. It is the teacher's decision when the episodes may best be integrated into the existing classroom curriculum. The episodes are built around 12 major environmental concepts that form a framework for each grade or subject area, as well as for the entire K-12 program. Although the same concepts are used throughout the K-12 program, emphasis is placed on different aspects of each concept at different grade levels or subject levels. This guide focuses on aspects such as radius, geometry, and average and percent. The 12 concepts are covered in one of the episodes contained in the guide. Further, each episode offers subject area integration, subject area activities, interdisciplinary activities, cognitive and affective behavioral objectives, and suggested references and resource materials useful to teachers and students. (Author/TK)

0903 ED 100 668

Mathematics 7, Environmental Education Guide.

Project I-C-E, Green Bay, Wis.

Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.; Wisconsin State Dept. of Education, Madison.

Pub Date—[74]

Note—44p.

Pub Type— Guides - General (050)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Computation, Conservation Education, *Environmental Education, Grade 7, Instructional Materials, Interdisciplinary Approach, Learning Activities, *Mathematical Applications, Mathematics Education, Natural Resources, Outdoor Education, Ratios (Mathematics), Science Education, Secondary Education, *Secondary School Mathematics, *Teaching Guides

Identifiers—Elementary Secondary Education Act Title III, *Project I C E

This seventh grade mathematics guide is one of a series of guides, K-12, that were developed by teachers to help introduce environmental education into the total curriculum. The guides are supplementary in design, containing a series of episodes (minilessons) that reinforce the relationships between ecology and mathematics. It is the teacher's decision when the episodes may best be integrated into the existing classroom curriculum. The episodes are built around 12 major environmental concepts that form a framework for each grade or subject area, as well as for the entire K-12 program. Although the same concepts are used throughout the K-12 program, emphasis is placed on different aspects of each concept at different grade levels or subject levels. This guide focuses on aspects such as proportion, computation, and percent. The 12 concepts are covered in one of the episodes contained in the guide. Further, each episode offers subject area integration, subject area activities, interdisciplinary activities, cognitive and affective behavioral objectives, and suggested references and resource materials useful to teachers and students. (Author/TK)

0904 ED 100 664

General Math 9-12, Environmental Education Guide.

Project I-C-E, Green Bay, Wis.

Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.; Wisconsin State Dept. of Education, Madison.

Pub Date—[74]

Note—87p.

Pub Type— Guides - General (050)

EDRS Price - MF01/PC04 Plus Postage.

Descriptors—*Conservation Education, *Environmental Education, Instructional Materials, Interdisciplinary Approach, Learning Activities, *Mathematical Applications, Mathematics Education, Natural Resources, Outdoor Education, Science Education, Secondary Education, *Secondary School Mathematics, *Teaching Guides

Identifiers—Elementary Secondary Education Act Title III, *Project I C E

This general mathematics guide, for use in grades 9-12, is one of a series of guides, K-12, that were developed by teachers to help introduce environmental education into the total curriculum. Since the nature of mathematics is abstract, students do not learn mathematics from ecology, nor ecology from mathematics. But, by observation and manipulation of environmental data, the student may inductively discover a principle in mathematics which can be reached deductively. The purpose of this booklet is to make an attempt to bridge mathematics and ecology. The guide is a supplementary handbook of ecologically-oriented mathematics exercises, designed to be self-contained and complete with answers. The exercises are built around 12 major environmental concepts that form a framework for each grade or subject area, as well as for the entire K-12 program. Each exercise is indexed by mathematical area and major mathematical concept and cross indexed by environmental concepts. Each lesson deals with a mathematical concept and its applications to an environmental problem. Further, each lesson offers subject area integration, subject area activities, interdisciplinary activities, cognitive and affective behavioral objectives, and suggested references and resource materials. (Author/TK)

0905 ED 099 226

Kraynak, Ola

Freddie Fish. A Primary Environmental Study of Basic Numerals, Sets, Ordinals and Shapes.

Broward County School Board, Fort Lauderdale, Fla.

Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.

Pub Date—73

Note—19p.

Pub Type— Guides - General (050)

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—Conservation Education, Elementary Education, *Elementary School Mathematics, *Environmental Education, *Instructional Materials, Interdisciplinary Approach, *Mathematics Education, Natural Resources, Pollution, *Science Education, Teaching Guides, Water Resources

Identifiers—Elementary Secondary Education Act Title III

This teacher's guide and study guide are an environmental approach to mathematics education in the primary grades. The mathematical studies of the numerals 0-10, ordinals, number sets, and basic shapes - diamond, circle, square, rectangle, and triangle - are developed through the story of Freddie Fish and his search for clean water. The preservation of wildlife and natural areas, and environmental stress limits are the environmental concepts behind this story of water pollution. The guide includes an illustrated story section, teacher information, objectives, suggested activities, and a post-test to be used after completing the guide. (TK)

0906 ED 085 249

Waldner, Suzanne Evert, Michael T.

Junior High Mathematics Activities and Problems in Environmental Education: A Teacher's Guide.

Milwaukee Public Schools, Wis. Div. of Curriculum and Instruction.

Pub Date—72

Note—56p.

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—Curriculum, Environment, *Environmental Education, *Guides, Instructional Materials, *Interdisciplinary Approach, Junior High Schools, Mathematical Applications, *Mathematics Education, Problem Solving, *Secondary School Mathematics

Identifiers—Elementary Secondary Education Act Title III

As its primary function, this publication is to provide ideas and suggestions for ways that junior high school mathematics teachers can include environmental concepts as a meaningful component of the ongoing instructional program in mathematics. It includes suggestions for activities and projects as well as environmentally-oriented problems which correlate with the mathematics concepts of the junior high program. Some activities require work outside of the classroom, but many may be used in presenting mathematical concepts. This work was prepared under an ESEA Title III contract. (JP)

0907 ED 079 159
Warpinski, Robert
A Supplementary Program for Environmental Education, Mathematics, Grade 10-12.
Project I-C-E, Green Bay, Wis.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—72
Note—46p.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Behavioral Objectives, *Environmental Education, Fundamental Concepts, Instructional Materials, Interdisciplinary Approach, Learning Activities, *Lesson Plans, *Mathematics, *Secondary Education, *Teaching Guides
Identifiers—Elementary Secondary Education Act Title III

Presented in this teacher's guide for grades 10-12 are lesson plans and ideas for integrating mathematics and environmental education. Each lesson originates with a fundamental concept pertaining to the environment and states, in addition, its discipline area, subject area, and problem orientation. Following this, behavioral objectives and suggested learning experiences are outlined. Behavioral objectives include cognitive and affective objectives and skills to be learned, while learning experiences list student-centered in-class activities and outside resource and community activities. Space is provided for teachers to note resource and reference materials–publications, audio-visual aids, and community resources. The guides are supplementary in nature and the lessons or episodes are designed to be placed in existing course content at appropriate times. This work was prepared under an ESEA Title III contract for Project I-C-E (Instruction-Curriculum-Environment). (BL)

0908 ED 079 158
Warpinski, Robert
A Supplementary Program for Environmental Education, Mathematics, Grade 7-8.
Project I-C-E, Green Bay, Wis.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—72
Note—70p.
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Behavioral Objectives, *Environmental Education, Fundamental Concepts, Grade 7, Grade 8, Instructional Materials, Interdisciplinary Approach, Learning Activities, *Lesson Plans, *Mathematics, *Secondary Education, *Teaching Guides
Identifiers—Elementary Secondary Education Act Title III

Presented in these teacher's guides for grades seven and eight are lesson plans and ideas for integrating mathematics and environmental education. Each lesson originates with a fundamental concept pertaining to the environment and states, in addition, its discipline area, subject area, and problem orientation. Following this, behavioral objectives and suggested learning experiences are outlined. Behavioral objectives include cognitive and affective objectives and skills to be learned, while learning experiences list student-centered in-class activities and outside resource and community activities. Space is provided for teachers to note resource and reference materials–publications, audio-visual aids, and community resources. The guides are supplementary in nature and the lessons or episodes are designed to be placed in existing course content at appropriate times. This work was prepared under an ESEA Title III contract for Project I-C-E (Instruction-Curriculum-Environment). (BL)

0909 ED 079 157
Warpinski, Robert
A Supplementary Program for Environmental Education, Mathematics, Grade 5-6.
Project I-C-E, Green Bay, Wis.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—72
Note—75p.
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Behavioral Objectives, *Elementary Education, *Environmental Education, Fundamental Concepts, Grade 5, Grade 6, Instructional Materials, Interdisciplinary Approach, Learning Activities, *Lesson Plans, *Mathematics, *Teaching Guides
Identifiers—Elementary Secondary Education Act Title III

Presented in these teacher's guides for grades five and six are lesson plans and ideas for integrating mathematics and environmental education. Each lesson originates with a fundamental concept pertaining to the environment and states, in addition, its discipline area, subject area, and problem orientation. Following this, behavioral objectives and suggested learning experiences are outlined. Behavioral objectives include cognitive and affective objectives and skills to be learned, while learning experiences list student-centered in-class activities and outside resource and community activities. Space is provided for teachers to note resource and reference materials–publications, audio-visual aids, and community resources. The guides are supplementary in nature and the lessons or episodes are designed to be placed in existing course content at appropriate times. This work was prepared under an ESEA Title III contract for Project I-C-E (Instruction-Curriculum-Environment). (BL)

0910 ED 079 156
Warpinski, Robert
A Supplementary Program for Environmental Education, Mathematics, Grade 2-4.
Project I-C-E, Green Bay, Wis.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—72
Note—86p.
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—Behavioral Objectives, *Elementary Education, *Environmental Education, Fundamental Concepts, Instructional Materials, Interdisciplinary Approach, Learning Activities, *Lesson Plans, *Mathematics, *Teaching Guides
Identifiers—Elementary Secondary Education Act Title III

Presented in these teacher's guides for grades two through four are lesson plans and ideas for integrating mathematics and environmental education. Each lesson originates with a fundamental concept pertaining to the environment and states, in addition, its discipline area, subject area, and problem orientation. Following this, behavioral objectives and suggested learning experiences are outlined. Behavioral objectives include cognitive and affective objectives and skills to be learned, while learning experiences list student-centered in-class activities and outside resource and community activities. Space is provided for teachers to note resource and reference materials–publications, audio-visual aids, and community resources. The guides are supplementary in nature and the lessons or episodes are designed to be placed in existing course content at appropriate times. This work was prepared under an ESEA Title III contract for Project I-C-E (Instruction-Curriculum-Environment). (BL)

0911 ED 079 155
Warpinski, Robert
A Supplementary Program for Environmental Education, Mathematics, Grade K-1.
Project I-C-E, Green Bay, Wis.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—72
Note—57p.
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Behavioral Objectives, *Environmental Education, Fundamental Concepts, Instructional Materials, Interdisciplinary Approach, Learning Activities, *Lesson Plans, *Mathematics, *Primary Education, *Teaching Guides
Identifiers—Elementary Secondary Education Act Title III

Presented in these teacher's guides for grades K-1 are lesson plans and ideas for integrating mathematics and environmental education. Each lesson originates with a fundamental concept pertaining to the environment and states, in addition, its discipline area, subject area, and problem orientation. Following this, behavioral objectives and suggested learning experiences are outlined. Behavioral objectives include cognitive and affective objectives and skills to be learned, while learning experiences list student-centered in-class activities and outside resource and community activities. Space is provided for teachers to note resource and reference materials–publications, audio-visual aids, and community resources. The guides are supplementary in nature and the lessons or episodes are designed to be placed in existing course content at appropriate times. This work was prepared under an ESEA Title III contract for Project I-C-E (Instruction-Curriculum-Environment). (BL)

1000 ED 183 395

Charbonneau, Manon P.

Fractional Parts. Elementary Module for Use in a Mathematics Laboratory Setting.

Regional Center for Pre-Coll. Mathematics, Denver, Colo.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—74

Grant—NSF-GW-7720

Note—32p.; For related documents, see SE 030 305-322

Pub Type— Guides - Classroom - Learner (051) — Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—*Activities, Elementary Education, *Elementary School Mathematics, *Fractions, *Learning Laboratories, Learning Modules, *Manipulative Materials, Mathematical Concepts, Mathematics Curriculum, *Mathematics Instruction, Mathematics Materials, Number Concepts, Worksheets

This module, concerned with fractional parts, contains 15 activity sheets, 12 of these involve students in making fractional parts and discovering the relationships of less than, equal to, and greater than, between different fractional parts. The last three sheets are for extending and enriching experiences with fractional parts. Teaching suggestions are provided for each activity sheet. (MK)

1001 ED 141 169

Rogers, Sandra

Laboratory Mathematics. Curriculum Booklet III - Fractions.

Anderson County School District 2, Honea Path, S.C.

Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.

Pub Date—77

Note—38p.; For related documents, see SE 022 692-699; Not available in hard copy due to marginal legibility of original document

Pub Type— Guides - General (050)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Educationally Disadvantaged, *Elementary School Mathematics, Elementary Secondary Education, Experiential Learning, *Fractions, *Fundamental Concepts, Individualized Instruction, *Instructional Materials, Laboratory Procedures, *Low Achievement, Mathematics Education, *Units of Study, Worksheets

Identifiers—Elementary Secondary Education Act Title III

This booklet is one of a set of five booklets which comprise the basic curriculum for "Mathematics Laboratories for Disadvantaged Students," a nationally validated Title III ESEA project. This publication provides evaluation materials and student materials related to fractions. Topics included in this booklet are meanings of fractions, renaming fractions, multiplication, division, addition, subtraction, and sizes of fractions. The project was designed for middle school students (grades 5-8). (RH)

1002 ED 139 667

Breeding, Wayne And Others

Central Iowa Low Achiever Mathematics Project - Rational Numbers.

Central Iowa Low-Achiever Mathematics Project, Des Moines.

Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.

Pub Date—[68]

Grant—OEG-67-03965-0

Note—270p.; For related documents, see ED 025 431-433 and ED 025 437; Contains occasional marginal legibility

Pub Type— Guides - General (050)

EDRS Price - MF01/PC11 Plus Postage.

Descriptors—Curriculum, Instruction, *Instructional Materials, Learning Activities, *Low Achievement, Mathematics Education, Number Concepts, *Rational Numbers, Secondary Education, *Secondary School Mathematics, Teaching Guides, Units of Study, Worksheets

Identifiers—*Central Iowa Low Achiever Mathematics Project

Numerous activities related to thirteen behavioral objectives for rational numbers are presented in this booklet. For each of the objectives, a list of short activities and lab activities is given. Student worksheets for the activities are provided. Concepts covered include writing numerals; representing fractions; finding equivalent fractions; reducing fractions; working with mixed numbers; determining greater than and less than relationships; finding common denominators; finding reciprocals; and adding, subtracting, multiplying, and dividing fractions. (DT)

1003 ED 127 130

Dirkse, Ronald And Others

An Activity Approach to Fractional Concepts, Monograph No. 5.

Michigan Council of Teachers of Mathematics.

Spons Agency—Michigan Education Association, East Lansing.

Pub Date—May 74

Note—50p.; For Monographs 6-9 of this series, see SE020685-688

Available from—MCTM, Box 16124, Lansing, Michigan 48901 ($1.00 each, prepaid)

Pub Type— Guides - General (050)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Elementary Education, *Elementary School Mathematics, *Experiential Learning, *Fractions, Instruction, *Instructional Materials, Mathematics Materials, Teaching Guides, *Worksheets

Identifiers—*Michigan

This monograph focuses upon the teaching of fractional concepts. The introduction to fractional concepts is treated through sets, number lines, and area. Included are three diagnostic pretests, one of which can be administered to a nonreader. The major core of the monograph consists of 23 worksheets which can be removed for duplication. The worksheets introduce fractional concepts through a variety of exercises involving sets, number lines, areas of figures, linear measures, and tangram activities. (JW)

1004 ED 123 070

Cosler, Norma, Ed.

Individualized Math Problems in Fractions. Oregon Vo-Tech Mathematics Problem Sets.

Oregon Math Education Council, Salem.; Oregon State Dept. of Education, Salem. Career and Vocational Education Section.

Pub Date—74

Note—118p.; For related documents, see SE 020 628-648; Occasional Marginal Legibility

Available from—Continuing Education Publications, P.O. Box 1491, Portland, Oregon 97207

Pub Type— Guides - General (050)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—*Fractions, Individualized Instruction, *Instructional Materials, Mathematical Applications, Mathematics Education, Numbers, *Problem Sets, Secondary Education, *Secondary School Mathematics, *Vocational Education

Identifiers—*Oregon Vo Tech Math Project

This is one of eighteen sets of individualized mathematics problems developed by the Oregon Vo-Tech Math Project. Each of these problem packages is organized around a mathematical topic and contains problems related to diverse vocations. Solutions are provided for all problems. This package contains problems involving computation with common fractions and conversion of fractions to decimals. The problems are drawn from twnety vocational areas: food processing, marketing, real estate, drafting, machine tools, industrial mechanics, nursing, forestry, agriculture, fire and police science, welding, aviation mechanics, industrial, electrical, and hydraulics technology, diesel mechanics, clerical work, construction, wastewater technology, auto mechanics, wood products, and electronics. (SD)

1005 ED 120 549

Herr, Nicholas K.

Fractions and Their Applications–A Math Practice Booklet.

Rutgers, The State Univ., New Brunswick, N.J. Curriculum Lab.

Spons Agency—New Jersey State Dept. of Education, Trenton. Div. of Vocational Education.

Report No.—VT-102-622

Pub Date—Feb 76

Note—56p.; For related documents, see CE 006 940-943

Available from—New Jersey Vocational-Technical Curriculum Laboratory, Rutgers-The State University, Building 4103 Kilmer Campus, New Brunswick, New Jersey 08903 ($1.25)

Pub Type— Books (010)

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—*Arithmetic, Educational Media, *Fractions, High School Students, Mathematics Curriculum, Mathematics Materials, *Secondary Education, Tests, *Vocational Education, Vocational High Schools, *Workbooks

The workbook is intended to help the vocational high school student understand and gain competence in working with fractions. The exercises provide practice in reducing and changing fractions, multiplying, dividing, finding a least common denominator and equivalent fractions, adding and subtracting. The types of fractions are also defined. Quizzes and problems with practical applications are utilized in the text to supplement the arithmetic problems. (RG)

1006 ED 106 113

Allen, LeDewey E., Jr.

The Teaching of Addition and Subtraction of Non-Decimal Fractions to Low Phase Secondary School Students.

Pub Date—29 Apr 74

Note—49p.; Best copy available, a portion of the text may reproduce marginally

Pub Type— Miscellaneous (999)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Addition, *Fractions, *Instruction, Secondary Education, *Secondary School Mathematics, *Slow Learners, Subtraction, *Teaching Methods

The slow learner is defined as a student whose IQ falls between 75 and 90 or who ranks below the thirtieth percentile of the student population in mathematical achievement. His characteristics and special needs are discussed in some detail. A presentation of selected methods and techniques for instructing slow learners to add and subtract non-decimal fractions follows. Behavioral objectives, specific topics, and an estimated schedule are given. Resources required for this instruction are described. The strategy employs concrete examples to the maximum extent possible. The laboratory approach and discovery methods are recommended. The nature and use of a particular teaching aid are discussed. The emphasis in evaluation is on each student's progress. (KM)

1007 ED 094 997

Israel, Joan

Mathematics for the Elementary School, Unit 20, Rational Numbers.

Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—65

Note—78p.

Pub Type— Guides - General (050)

EDRS Price - MF01/PC04 Plus Postage.

Descriptors—Addition, Curriculum, Division, *Elementary School Mathematics, Experiential Learning, *Fractions, Instruction, *Instructional Materials, Multiplication, Number Concepts, *Rational Numbers, Subtraction, *Teaching Guides, Units of Study, Worksheets

Identifiers—MINNEMAST, *Minnesota Mathematics and Science Teaching Project, Number Operations

The Minnesota School Mathematics and Science Teaching (MINNEMAST) Project is characterized by its emphasis on the coordination of mathematics and science in the elementary school curriculum. Units are planned to provide children with activities in which they learn various concepts from both subject areas. Each subject is used to support and reinforce the other where appropriate, with common techniques and concepts being sought and exploited. Content is presented in story fashion. The stories serve to introduce concepts and lead to activities. Imbedded in the pictures that accompany the stories are examples of the concepts presented. This unit introduces fractions by comparing different scales on number lines. The concept is built as a ratio between scales. As in the earlier units, operations with fractions are presented through activities involving the number line; the four operations, addition, subtraction, multiplication and division of fractions, are covered in this unit. Worksheets and commentaries to the teacher are provided and additional activities are suggested. (JP)

1008 ED 093 713

Rational Applications 4, Mathematics (Experimental): 5213.80.

Dade County Public Schools, Miami, Fla.
Pub Date—72
Note—16p.; An Authorized Course of Instruction for the Quinmester Program. Related documents are SE 018 084-086
Pub Type— Guides - General (050)
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Behavioral Objectives, Computation, *Curriculum, Decimal Fractions, Fractions, Instruction, *Mathematical Applications, Mathematical Formulas, Mathematics, Mathematics Education, Number Concepts, *Objectives, Percentage, Rational Numbers, Ratios (Mathematics), *Secondary School Mathematics, *Teaching Guides, Tests, Trigonometry, Whole Numbers
Identifiers—*Quinmester Program

The fourth of four quins intended to develop computational skills with non-negative rational numbers through applications to business and industry, this guidebook on minimum course content is designed for the student who has acquired basic computational skills with non-negative rational numbers. Topics include ratio, proportion, and percentage applications and trigonometry. Overall course goals are specified, a course outline is provided, and performance objectives are listed. Also included is a set of sample test items for skills and a list of resources. (JP)

1009 ED 093 712

Rational Applications 3, Mathematics (Experimental): 5213.79.

Dade County Public Schools, Miami, Fla.
Pub Date—72
Note—17p.; An Authorized Course of Instruction for the Quinmester Program. Related documents are SE 018 084-087
Pub Type— Guides - General (050)
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Behavioral Objectives, Computation, *Curriculum, Decimal Fractions, Fractions, Geometric Concepts, Instruction, *Mathematical Applications, Mathematics Education, Measurement, Number Concepts, *Objectives, Percentage, Rational Numbers, *Secondary School Mathematics, *Teaching Guides, Tests, Whole Numbers
Identifiers—Geometric Constructions, *Quinmester Program

The third of four quins intended to develop computational skills with non-negative rational numbers through applications to business and industry, this guidebook on minimum course content is designed for the student who has acquired basic computational skills with non-negative rational numbers. Topics include measurement and geometrical constructions. Overall course goals are specified, a course outline is provided, and performance objectives are listed. Also included is a set of sample test items for skills and a list of resources. (JP)

1010 ED 093 711

Rational Applications 2, Mathematics (Experimental): 5213.78.

Dade County Public Schools, Miami, Fla.
Pub Date—72
Note—16p.; An Authorized Course of Instruction for the Quinmester Program. Related documents are SE 018 084-087
Pub Type— Guides - General (050)
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Behavioral Objectives, Computation, *Curriculum, Decimal Fractions, Fractions, Geometric Concepts, Instruction, *Mathematical Applications, Mathematical Formulas, Mathematics, Mathematics Education, Number Concepts, *Objectives, Percentage, Rational Numbers, *Secondary School Mathematics, *Teaching Guides, Tests, Whole Numbers
Identifiers—*Quinmester Program

The second of four quins intended to develop computational skills with non-negative rational numbers through applications to business and industry, this guidebook on minimum course content is designed for the student who has acquired basic computational skills with non-negative rational numbers. Overall course goals are specified, a course outline is provided, and performance objectives are listed. Included is a set of sample test items for skills and a list of resources. (JP)

1011 ED 093 710

Rational Applications 1, Mathematics (Experimental): 5213.77.

Dade County Public Schools, Miami, Fla.
Pub Date—72
Note—16p.; An Authorized Course of Instruction for the Quinmester Program. Related documents are SE 018 085-087
Pub Type— Guides - General (050)
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Behavioral Objectives, Computation, *Curriculum, Decimal Fractions, Fractions, Instruction, *Mathematical Applications, Mathematics Education, Number Concepts, *Objectives, Percentage, Rational Numbers, *Secondary School Mathematics, *Teaching Guides, Tests, Whole Numbers
Identifiers—*Quinmester Program

The first of four quins intended to develop computational skills with non-negative rational numbers through applications to business and industry, this guidebook on minimum course content is designed for the student who has acquired basic computational skills with non-negative rational numbers. Overall course goals are specified, a course outline is provided, and performance objectives are listed. Included is a set of sample test items for skills and a list of resources. (JP)

1012 ED 090 005

Thompson, Russ Fuller, Albert

Basic Math I, Package 01-06, Addition and Subtraction of the Numbers of Arithmetic.

Arnold Public Schools, Nebr.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—72
Note—37p.; For related documents, see SE 017 553 through 557 and SE 017 559 through 575
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Addition, Division, *Fractions, Grade 9, Individualized Instruction, Inequalities, *Instructional Materials, Multiplication, Objectives, *Secondary School Mathematics, Subtraction, *Teaching Guides, *Tests
Identifiers—Elementary Secondary Education Act Title III, *General Mathematics

This teacher guide is part of the materials prepared for an individualized program for ninth-grade algebra and basic mathematics students. Materials written for the program are to be used with audiovisual lessons recorded on tape cassettes. For an evaluation of the program, see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are included for each topic covered. The work in this package covers addition and subtraction of simple and mixed fractions, multiplication and division of mixed fractions and work on determining the relative size of two fractions. This work was prepared under an ESEA Title III contract. (JP)

1013 ED 090 004

Thompson, Russ Fuller, Albert

Basic Math I, Package 01-05, Multiplication and Division of the Numbers of Arithmetic.

Arnold Public Schools, Nebr.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—72
Note—30p.; For related documents, see SE 017 553 through 556 and SE 017 558 through 575
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Division, *Fractions, Grade 9, Individualized Instruction, *Instructional Materials, Multiplication, Objectives, *Secondary School Mathematics, *Teaching Guides, *Tests
Identifiers—Elementary Secondary Education Act Title III, *General Mathematics

This teacher guide is part of the materials prepared for an individualized program for ninth-grade algebra and basic mathematics students. Materials written for the program are to be used with audiovisual lessons recorded on tape cassettes. For an evaluation of the program, see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are included for each topic covered. A review of fractions is presented in this package. The work deals with equivalent fractions and with multiplication and division of fractions. This work was prepared under an ESEA Title III contact. (JP)

1014 ED 079 124

Activities with Fractions, Mathematics (Experimental): 5212.74.

Dade County Public Schools, Miami, Fla.
Pub Date—71
Note—15p.; An Authorized Course of Instruction for the Quinmester Program
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Algorithms, Behavioral Objectives, Curriculum, *Fractions, Instruction, Mathematics Education, *Objectives, *Secondary School Mathematics, *Teaching Guides, Tests
Identifiers—*Quinmester Program

Designed for the student who has acquired basic computational skills with non-negative rational numbers, this guidebook on minimum course content seeks further development of computational skills with fractions. General goals and performance objectives, a course outline, teaching strategies, sample test items, and a list of six references are included. The quin is based on chapters from the text, "Essentials of Mathematics 2", by Sobel, Maletsky and Hill. (DT)

1015 ED 076 404

Boyer, Lee E. And Others

Teaching Fractions with the Number Line. Mathematics Series No. 2.

Pennsylvania State Dept. of Public Instruction, Harrisburg.
Pub Date—62
Note—14p.
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Curriculum, *Elementary School Mathematics, *Fractions, *Instruction, Mathematics Education, Number Concepts, *Teaching Guides
Identifiers—*Number Line

This booklet explains in detail how a number line can be used to demonstrate adding, subtracting, multiplying, and dividing fractions. The fractions 5/7 and 2/3 are first used as examples for each operation, then results are generalized to operations on a/b and c/d. (Related documents are SE 015 950 and SE 015 951.) (DT)

1017 ED 050 949

Rational Numbers, Experiences in Mathematical Discovery (Number 7).

National Council of Teachers of Mathematics, Inc., Washington, D.C.
Pub Date—71
Note—97p.
Available from—National Council of Teachers of Mathematics, 1201 Sixteenth Street, N.W., Washington, D. C. 20036 ($1.00)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Elementary School Mathematics, *Fractions, Grade 9, Instruction, *Instructional Materials, Low Achievement, *Mathematics Education, Number Concepts, *Number Systems, *Secondary School Mathematics

This booklet is one of the ten in the series "Experiences in Mathematical Discovery", produced by the General Mathematics Writing Project of the NCTM. Each is designed for use by students of ninth-grade general mathematics. The discussion and problems are designed to guide the student through an understanding of: 1) fractions, 2) equivalent fractions, 3) rational numbers on the number line, and 4) the arithmetic of rational numbers. (RS)

1018 ED 022 938

Rahmlow, Harold F. And Others

Occupational Mathematics; Division of Fractions. Report No. 16-H, Booklet II. Final Report.

Washington State Coordinating Council for Occupational Education, Olympia.; Washington State Univ., Pullman. Dept. of Education.
Spons Agency—Office of Education (DHEW), Washington, D.C.
Bureau No.—BR-7-0031
Pub Date—Jun 68
Grant—OEG-4-7-070031-1626
Note—103p.
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—*Arithmetic, *Division, *Fractions, *Programed Instructional Materials, *Textbooks, *Vocational Education

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should know that "quotient" indicates division and be able to: (1) divide a fraction of the form a/b, where 0 is less than (a,b) and these are less than 100, by a positive integer less than 100, (2) divide a fraction of the form a/b by a fraction of the form c/d, where 0 is less than (a, b, c, d) and these are less than 100, (3) divide mixed numbers by mixed numbers where the mixed numbers are of the form Xa/b where 0 is less than (X,a,b) and these are less than 100, (4) divide literal fractions, and (5) divide any combination of letters, fractions, integers, and mixed numbers listed above. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975. (EM)

1019 ED 022 937
Rahmlow, Harold F. And Others
Occupational Mathematics; Division of Fractions. Report No. 16-H. Final Report.
Washington State Coordinating Council for Occupational Education, Olympia.; Washington State Univ., Pullman. Dept. of Education.
Spons Agency—Office of Education (DHEW), Washington, D.C.
Bureau No.—BR-7-0031
Pub Date—Jun 68
Grant—OEG-4-7-070031-1626
Note—105p.
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—*Arithmetic, *Division, *Fractions, *Programed Instructional Materials, *Textbooks, *Vocational Education

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should know that "quotient" indicates division and be able to: (1) divide a fraction of the form a/b, where 0 is less than (a,b) and these are less than 100, by a positive integer less than 100, (2) divide a fraction of the form a/b by a fraction of the form c/d, where 0 is less than (a,b,c,d) and these are less than 100, (3) divide mixed numbers by mixed numbers of the form Xa/b, where 0 is less than (X,a,b) and these are less than 100, (4) divide literal fractions, and (5) divide any combination of the letters, fractions, integers, and mixed numbers listed above. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975. (EM)

1020 ED 022 936
Rahmlow, Harold F. And Others
Occupational Mathematics; Multiplication of Fractions. Report No. 16-G. Final Report.
Washington State Coordinating Council for Occupational Education, Olympia.; Washington State Univ., Pullman. Dept. of Education.
Spons Agency—Office of Education (DHEW), Washington, D.C.
Bureau No.—BR-7-0031
Pub Date—Jun 68
Grant—OEG-4-7-070031-1626
Note—123p.
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—*Arithmetic, *Fractions, *Multiplication, *Programed Instructional Materials, *Textbooks, *Vocational Education

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should know that the word "product" indicates multiplication and be able to: (1) multiply two or three numeric fractions of the form a/b, where 0 is less than (a,b) when these are less than 100, (2) multiply a numerical fraction of the form a/b, where 0 is less than (a,b) when these are less than 100, by a fraction containing a letter and a positive integer less than 100, (3) multiply two literal fractions of the form a/b, (4) multiply a numeric fraction of the form a/b, where 0 is less than (a,b) and these are less than 100, and (5) multiply two mixed numbers of the form Xa/b where 0 is less than (X,a,b) and these are less than 100. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975. (EM)

1021 ED 022 935
Rahmlow, Harold F. And Others
Occupational Mathematics; Subtraction of Fractions. Report No. 16-F. Final Report.
Bureau No.—BR-7-0031
Pub Date—Jun 68
Grant—OEG-4-7-070031-1626
Note—101p.
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—*Arithmetic, *Fractions, *Programed Instructional Materials, *Subtraction, *Textbooks, *Vocational Education

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should be able to: (1) know that "difference" indicates the operation of subtraction, (2) order any set of fractions, (3) subtract a small fraction of the form a/b where 0 is less than (a,b) when these are less than 100 from a larger fraction with the same denominator, (4) subtract a small fraction of the form a/b, where 0 is less than (a,b) and these are less than 100, from a larger fraction of the same form with unlike denominators, (5) subtract two literal fractions with common denominators, (6) subtract two literal fractions with unlike denominators, and (7) subtract a small mixed number from a larger one of the form Xa/b where 0 is less than (X,a,b) when these are less than 100. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975. (EM)

1022 ED 022 934
Rahmlow, Harold F. And Others
Occupational Mathematics; Addition of Fractions. Report No. 16-E. Booklet II. Final Report.
Washington State Coordinating Council for Occupational Education, Olympia.; Washington State Univ., Pullman. Dept. of Education.
Bureau No.—BR-7-0031
Pub Date—Jun 68
Grant—OEG-4-7-070031-1626
Note—107p.
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—*Addition, *Arithmetic, *Fractions, *Programed Instructional Materials, *Textbooks, *Vocational Education

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should be able to: (1) know that "sum" indicates the operation of addition, (2) add two or three numeric fractions of the form a/b where 0 is less than a/b and when a/b is less than 100, (3) add two or three fractions of the form k/y, where 0 is less than k when k is less than 100 and y is the same literal denominator for all fractions, (4) add two or three literal fractions with the same denominators, and (5) add mixed fractions of the form Xa/b, where 0 is less than (X,a, and b) and these are less than 100. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975. (EM)

1023 ED 022 933
Rahmlow, Harold F. And Others
Occupational Mathematics; Addition of Fractions. Report No. 16-E. Final Report.
Washington State Coordinating Council for Occupational Education, Olympia.; Washington State Univ., Pullman. Dept. of Education.
Spons Agency—Office of Education (DHEW), Washington, D.C.
Bureau No.—BR-7-0031
Pub Date—Jun 68
Grant—OEG-4-7-070031-1626
Note—94p.
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—*Addition, *Arithmetic, *Fractions, *Programed Instructional Materials, *Textbooks, *Vocational Education

This programed mathematics textbook (Volume I) is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should be able to: (1) know that "sum" indicates the operation of addition, (2) add two or three numeric fractions of the form a/b where 0 is less than a/b and when a/b is less than 100, (3) add two or three fractions of the form k/y, where 0 is less than k when k is less than 100 and y is the same literal denominator for all fractions, (4) add two or three literal fractions with the same denominators, and (5) add mixed fractions of the form Xa/b, where 0 is less than (X,a, and b) and these are less than 100. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975. (EM)

1024 ED 022 932
Rahmlow, Harold F. And Others
Occupational Mathematics; Equivalent Forms. Report No. 16-C. Booklet II. Final Report.
Washington State Coordinating Council for Occupational Education, Olympia.; Washington State Univ., Pullman. Dept. of Education.
Spons Agency—Office of Education (DHEW), Washington, D.C.
Bureau No.—BR-7-0031
Pub Date—Jun 68
Grant—OEG-4-7-070031-1626
Note—126p.
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—*Arithmetic, *Fractions, Fundamental Concepts, *Numbers, *Programed Instructional Materials, *Textbooks, *Vocational Education

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should be able to: (1) change integers into equivalent forms, (2) change fractions into equivalent forms, (3) recognize prime numbers up to 20, (4) factor the number 100 into primes, and (5) reduce literal or numeric fractions. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 882-VT 006 909, and VT 006 975. (EM)

1025 ED 022 931
Rahmlow, Harold F. And Others
Occupational Mathematics; Equivalent Forms. Report No. 16-C. Booklet II. Final Report.
Washington State Coordinating Council for Occupational Education, Olympia.; Washington State Univ., Pullman. Dept. of Education.
Spons Agency—Office of Education (DHEW), Washington, D.C.
Bureau No.—BR-7-0031
Pub Date—Jun 68
Grant—OEG-4-7-070031-1626
Note—117p.
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—*Arithmetic, *Fractions, Fundamental Concepts, *Numbers, *Programed Instructional Materials, *Textbooks, *Vocational Education

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should be able to: (1) change integers into equivalent forms, (2) change fractions into equivalent forms, (3) recognize prime numbers up to 20, (4) factor the number 100 into primes, and (5) reduce literal or numeric fractions. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 882-VT 006 909, and VT 006 975. (EM)

1026 ED 067 291
Double-S Fractions, Mathematics: 5211.15.
Dade County Public Schools, Miami, Fla.
Pub Date—71
Note—25p.; An Authorized Course of Instruction for the Quinmester Program
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Behavioral Objectives, *Curriculum, Instruction, Mathematics Education, *Objectives, *Remedial Mathematics, *Secondary School Mathematics, *Teaching Guides, Tests
Identifiers—*Quinmester Program

The third of four guidebooks using UICSM's "stretcher and shrinker" approach, this booklet includes work with the four operations with fractions and mixed numbers, and problems with per cent. Goals for the course, general performance objectives, teaching suggestions, and a suggested time schedule are given. Objectives for each topic are specified. A bibliography of 16 references for enrichment and practice activities is included. For other booklets in this set, see SE 014 885 and SE 014 883. (DT)

GENERAL MATHEMATICS

1100 ED 161 767
General High School Mathematics.
New York State Education Dept., Albany. Bureau of General Education Curriculum Development.; State Univ. of New York, Albany.
Pub Date—Aug 78
Note—73p.
Pub Type— Guides - General (050)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—*Calculators, *Curriculum Guides, *General Education, Geometry, Graphs, *Mathematical Applications, Measurement, Number Systems, Secondary Education, *Secondary School Mathematics, *Teaching Guides
Identifiers—*General Mathematics

This outline is for a pre-algebra course designed to prepare students for algebra or to satisfy a one-year mathematics requirement. A key purpose is to present a practical mathematical experience. A detailed outline is given with a suggested time allotment for each chapter. A discussion of each topic follows with teaching suggestions and examples. The chapters are partitioned as basic units and supplementary units. Topics in the basic units include: integers; rational numbers; graphing; measurement of geometric figures; ratio, proportion, and percent; probability and statistics; and consumer and job-related mathematics. Supplementary units include: informal geometry; recreational mathematics; flow charts and calculators; volumes of geometric solids; and mathematical reasoning. (MP)

1101 ED 098 065
Byers, James E.
Learning Activity Package, General Math 102, LAPs 13-24.
Ninety Six High School, S. C.
Pub Date—[73]
Note—85p.; See SE 018 193 for related document
Pub Type— Guides - General (050)
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—Computation, Curriculum, Education, *Individualized Instruction, *Instructional Materials, *Learning Modules, Mathematics, Number Concepts, Objectives, *Secondary School Mathematics, Teacher Developed Materials, Teaching Guides, Units of Study
Identifiers—General Mathematics

This series of 12 teacher-prepared Learning Activity Packages (LAPs) for General Mathematics 2 covers the topics of numbers; descriptive statistics; calculations with whole numbers and percents; measurement; geometric concepts; formulas, areas, and volumes; introductory algebra; integers; indirect measurement; insurance, taxes, and savings; consumer mathematics; and different number bases. Each unit contains a rationale for the material being covered; lists of behavioral objectives; a list of reading assignments, problem sets to be completed, and tape recordings; and a student self-evaluation problem set. (DT)

1102 ED 098 064
Byers, James E.
Learning Activity Package, General Math 92, LAPs 1-12.
Ninety Six High School, S. C.
Pub Date—[73]
Note—85p.; See SE 018 194 for related document
Pub Type— Guides - General (050)
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—Computation, Curriculum, *Individualized Instruction, *Instructional Materials, Mathematics Education, *Number Concepts, Objectives, *Secondary School Mathematics, Teacher Developed Materials, Teaching Guides, Units of Study
Identifiers—*General Mathematics

This is a series of 12 teacher-prepared Learning Activity Packages (LAPs) for General Mathematics 1. Topics covered include using mathematical tools; counting and computing; measurement: whole and fractional numbers; measurement: decimal notation; percent; tables and graphs; introductory algebra; equations and applications; integers; and computing, managing, and using income. The units each contain a rationale for the material being covered; lists of behavioral objectives; a list of reading assignments, problem sets, tape recordings, and filmstrips that go with the unit; and a student self-evaluation problem set. (DT)

1103 ED 089 034
Fundamentals of Mathematics I and II: Curriculum Guide.
Harlandale Independent School District, San Antonio, Tex. Career Education Center.
Spons Agency—Office of Education (DHEW), Washington, D.C.; Texas Education Agency, Austin. Dept. of Occupational Education and Technology.
Pub Date—[70]
Note—111p.
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—Audiovisual Aids, *Career Education, *Curriculum Guides, Educational Objectives, Educational Resources, Grade 9, Instructional Materials, *Mathematics, *Performance Specifications, Resource Materials, *Secondary Education, Teaching Methods, Units of Study
Identifiers—Texas

The guide is divided into two sections: Fundamentals of Mathematics I and Fundamentals of Mathematics II. Both sections are divided into vertical columns relating mathematical curriculum concepts to curriculum performance objectives; career concepts, performance objectives, general information and teaching activities; suggested teaching methods, and resource materials. Space is provided for teachers' notes which will be useful when the guide is revised. The first section is a three quarter course intended for ninth grade students whose achievement level in mathematics is two or more years below grade level. The purpose of the curriculum guide is to improve on the textbook used district-wide by implementing its coverage, describing supplementary material, and, in general, aiding the teacher. The second section describes a curriculum designed to relate mathematics to daily living and to present topics that are useful in becoming a wise consumer. Appended materials emphasize consumer credit. (AG)

1104 ED 080 329
Drop-In Mathematics, Teacher's Manual.
Arkansas State Dept. of Education, Little Rock.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—[72]
Note—145p.
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—Curriculum, *Grade 9, Instruction, *Instructional Materials, Mathematics Education, *Secondary School Mathematics, *Teaching Guides, Teaching Methods
Identifiers—*General Mathematics

This teacher's manual accompanying the ninth-grade general mathematics workbook, Drop-In Mathematics, states objectives for each of the topics covered, suggests teaching methods, lists resource materials, and provides an answer key for problems in the text. Enrichment activities are included in the appendix. For student materials, see SE 016 406. (DT)

1105 ED 080 328
Underwood, Evelyn, Ed. And Others
Drop-In Mathematics.
Arkansas State Dept. of Education, Little Rock.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—72
Note—264p.
EDRS Price - MF01/PC11 Plus Postage.
Descriptors—Curriculum, *Grade 9, Instruction, *Instructional Materials, Mathematical Applications, Mathematics Education, Measurement, Number Concepts, Number Systems, *Secondary School Mathematics, *Workbooks
Identifiers—*General Mathematics

This material, organized in a workbook format, was developed to be used with the non-college bound, lower one-third of the ninth-grade student population. Topics covered are flowcharts, set theory, number systems (natural numbers, whole numbers, integers, and rationals), number operations, percentage, measurement, finance, geometric constructions, statistics, and number bases. For the teacher's manual, see SE 016 407. (DT)

1106 ED 062 157
A Course in Basic Mathematics for Colleges.
Committee on the Undergraduate Program in Mathematics, Berkeley, Calif.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—Jan 71
Note—64p.
Available from—CUPM, P. O. Box 1024, Berkeley, California 94701 (Free)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Algebra, *College Mathematics, *College Programs, Computers, Flow Charts, Geometry, Mathematics Education, *Remedial Programs, Undergraduate Study
Identifiers—Committee on the Undergraduate Program in Math

This booklet describes a one year college course for students in the lower half of the mathematics ability range. The main aim of the course is to "provide the students with enough mathematical literacy for adequate participation in the daily life of our present society." A second aim is remedial, to allow a student to continue with further mathematics courses. The course covers (in order): Flow charts and elementary operations, Rational numbers, Geometry I, Linear polynomials and equations, The computer, Nonlinear relationships, Geometry II, Statistics, and Probability. The commentary includes notes on teaching the course, recommendations on laboratory activities, and sample exercises. (MM)

1107 ED 062 155
Applied Mathematics in the Undergraduate Curriculum.
Committee on the Undergraduate Program in Mathematics, Berkeley, Calif.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—Jan 72
Note—60p.
Available from—CUPM, P. O. Box 1024, Berkeley, California 94701 (Free)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—*College Mathematics, *College Programs, *Curriculum, *Mathematical Applications, *Mathematical Models, Mathematics Education, Undergraduate Study
Identifiers—Committee on the Undergraduate Program in Math

After considering the growth in the use of mathematics in the past 25 years, this report makes four major recommendations regarding the undergraduate curriculum: (1) The mathematics department should offer a course or two in applied mathematics which treat some realistic situations completely, including the steps of problem formulation, model building, problem solution with associated computations, and result interpretation. Three suggested courses, centered on the topics of optimization, graph theory and combinatorics, and fluid mechanics, are outlined with references and sample problems; (2) A greater number of realistic applications from a greater variety of fields should be introduced into the mathematics courses of the first two years; (3) Every student whose degree includes a substantial number of mathematics courses should take at least one course in applied mathematics. This recommendation applies to prospective secondary school mathematics teachers as well as mathematics majors; and (4) An undergraduate concentration in applied mathematics should be offered if the resources of the college permit. (MM)

1108 ED 050 056
Mathematics Curriculum Guide. Basic Mathematics 9-12.
Gary City Public School System, Ind.
Pub Date—68
Note—105p.
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—*Curriculum Guides, Grade 9, Grade 10, Grade 11, Grade 12, *Mathematics, *Secondary School Curriculum, *Secondary School Mathematics

GRADES OR AGES: Grades 9-12. SUBJECT MATTER: Basic mathematics. ORGANIZATION AND PHYSICAL APPEARANCE: The guide has three main sections–general mathematics, applied mathematics, and senior mathematics. The material in each section is set out in four columns–major areas, significant anticipated outcomes, observations and suggestions, and references and films. The guide is mimeographed and spiral bound with a soft cover. OBJECTIVES AND ACTIVITIES: Objectives are listed at the beginning of each section. The content of the major areas is described but activities are not specified in detail. INSTRUCTIONAL MATERIALS: Texts, films, and filmstrips are listed for the major areas, and a bibliography and list of film distributors is given at the end of each section. STUDENT ASSESSMENT: A multiple choice test is included for use in evaluating basic concepts of mathematics studied in each of the three sections. (MBM)

1109 ED 025 433
Zimmerman, Joseph T.
Central Iowa Low Achiever Mathematics Project - Low Achiever Motivational Project.
Central Iowa Low-Achiever Mathematics Project, Des Moines.; Des Moines Public Schools, Iowa.
Spons Agency—Office of Education (DHEW), Washington, D.C. Bureau of Elementary and Secondary Education.
Pub Date—[Nov 68]
Grant—OEG-3965
Note—145p.
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—Algebra, Arithmetic, Geometry, Grade 7, Grade 8, Grade 9, Instruction, *Instructional Materials, *Low Achievement, *Mathematics, *Secondary School Mathematics
Identifiers—Central Iowa Low Achiever Mathematics Project

The materials in this booklet are designed especially for the low achieving student in mathematics. Containing some materials from a course in general mathematics, the booklet is intended to be used in conjunction with conventional textbook materials and is designed to serve as a source of new ideas for teachers and to relieve the teacher of much unnecessary work in preparing attractive and instructional mimeographed materials. Mathematical concepts are drawn from such topics as algebra, fractions, graphing, geometry, measurement, and computational skills. This work was prepared under ESEA Title III contract. (RP)

1110 ED 021 734
Handbook for General Mathematics.
Maryland State Dept. of Education, Baltimore.
Pub Date—66
Note—147p.
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—Algebra, Arithmetic, *Course Content, *Curriculum, Geometry, Instructional Materials, *Mathematics, Noncollege Bound Students, *Secondary School Mathematics, State Departments of Education, *Teaching Guides
Identifiers—Maryland

This handbook for general mathematics presents some classroom materials to aid the teacher of non college-bound pupils. The materials are intended to be of assistance to teachers in teaching the materials in a manner which will maximize the mathematical flexibility as well as the mathematical skills of the pupils. The goal was to prepare a booklet of ideas and approaches to mathematics for all teachers of general mathematics. Classroom materials are provided in the content areas of natural numbers, integers, rational numbers, and geometry. (RP)

1111 ED 021 733
McComb, Patricia
Applied Mathematics, Secondary Schools, Grades 10-12.
Minnesota State Dept. of Education, St. Paul.
Report No.—CURR-BULL-20A
Pub Date—64
Note—115p.
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—Computers, Curriculum, *Curriculum Guides, Instruction, *Mathematical Applications, *Mathematics, Secondary School Mathematics
Identifiers—Department of Education, Minnesota

This manual indicates a practical approach to the topic of general or consumer mathematics as taught in senior high school. This course is intended for those pupils who cannot succeed in the sequential high school mathematics course. The material for this course has been selected to provide experiences which will tend to improve the mathematical competence of future workers and citizens. The objectives of these materials are (1) to increase accuracy, understanding, and efficiency in computational skills, (2) to develop new computational skills and extend the understanding of number and computational processes, (3) to provide skill in collecting, reading, organizing, and interpreting data, (4) to develop an attitude of social-mindedness acquired through a study of consumer problems, (5) to provide the mathematical skill and knowledge necessary to cope with the problems of the consumer and citizen, (6) to provide the basic mathematics needed by pupils in their future work and study in the trades and semi-professional occupations, (7) to stimulate an interest in learning mathematics, and (8) to provide an opportunity to demonstrate such traits as creativity, imagination, curiosity, and vizualization. (RP)

1112 ED 019 226
ROGLER, PAUL V.
WILMINGTON OPERATIONAL MATHEMATICS PROGRAM.
Wilmington Public Schools, Del.
Report No.—BR-6-8786
Note—169P.
EDRS Price - MF01/PC07 Plus Postage.
Descriptors—Algebra, *Curriculum, *Curriculum Development, Geometry, Grade 9, *Mathematics, *Secondary School Mathematics
Identifiers—DELAWARE, Delaware (Wilmington), Wilmington Public Schools DE

THIS PROJECT PROVIDES A PROGRAM FOR THE EDUCATION OF NINTH GRADE STUDENTS IN GENERAL MATHEMATICS. THE PURPOSE OF THE PROJECT IS (1) TO WRITE UNITS OF WORK THAT INCORPORATE PRACTICAL APPLICATIONS FROM THE EVENTS AND AFFAIRS OF URBAN LIFE, (2) TO SEEK OUT PROBLEMS FROM LOCAL INDUSTRY, AND (3) TO PROVIDE DIFFERENTIATED ACTIVITIES AND EXERCISES THAT APPEAL TO THE INTERESTS AND ABILITIES OF THE VARIETY OF STUDENTS THAT ARE FOUND IN NINTH GRADE GENERAL MATHEMATICS CLASSES. TO ACCOMPLISH THESE OBJECTIVES, THE DIRECTOR AND THREE TEACHERS WORKED TOGETHER FOR SIX WEEKS, WRITING UNITS ON (1) CARPENTRY, (2) MATHEMATICS IN SPORTS, (3) SCIENCE, (4) WORLD OF WORK, (5) PRACTICAL NURSING, (6) BUSINESS EXPERIENCE, (7) GEOMETRY, (8) SETS AND PROBABILITY, (9) A MODERN FACTORY, (10) TRAVEL, AND (11) ALGEBRA. EACH STUDENT IS PROVIDED WITH SUFFICIENT BASIC MATERIALS FOR USE AS NEEDED. TEACHERS' COPIES OF THE PROGRAM PROVIDE MANY TEACHING SUGGESTIONS AND A NUMBER OF TRANSPARENCIES FOR USE WITH THE UNITS. MATERIALS WERE PROVIDED FOR FIVE EXPERIMENTAL CLASSES AND ARE PRESENTLY IN USE. THE FIVE TEACHERS WHO ARE USING THE MATERIALS ARE MEETING PERIODICALLY DURING THE SCHOOL YEAR TO EVALUATE AND REWRITE THE UNITS AS NECESSARY. (RP)

1113 ED 017 461
ANDERSON, RICHARD D.
A CURRICULUM IN APPLIED MATHEMATICS.
Committee on the Undergraduate Program in Mathematics, Berkeley, Calif.
Pub Date—JAN66
Note—32P.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*College Mathematics, *Curriculum, *Curriculum Development, Engineering, *Mathematical Applications, *Mathematics, Physical Sciences, Social Sciences, Undergraduate Study
Identifiers—MATHEMATICAL ASSOCIATION OF AMERICA, NATIONAL SCIENCE FOUNDATION

REPORTED IS THE DEVELOPMENT OF UNDERGRADUATE MATHEMATICS COURSES PROPERLY REFLECTING THE MATHEMATICAL NEEDS OF STUDENTS IN THE RAPIDLY DEVELOPING ENGINEERING, PHYSICAL, AND SOCIAL SCIENCES. THE PURPOSE OF THIS UNDERGRADUATE PROGRAM IS TO PERMIT STUDENTS TO DEVELOP AND NURTURE INTERESTS IN APPLIED MATHEMATICS AT AN EARLY STAGE SO THAT SIGNIFICANT INCREASES IN THE NUMBER AND QUALITY OF APPLIED MATHEMATICIANS WOULD RESULT. THE PROGRAM DESCRIBED IS PRE-GRADUATE, IN THE SENSE THAT ITS GOAL IS TO PREPARE STUDENTS FOR GRADUATE WORK IN APPLIED MATHEMATICS. PHILOSOPHY, CONTENT, AND IMPLEMENTATION OF THE PROGRAM ARE PRESENTED IN THE MAIN BODY OF THE REPORT. THIS DOCUMENT IS ALSO AVAILABLE WITHOUT CHARGE FROM CUPM CENTRAL OFFICE, P. O. BOX 1024, BERKELEY, CALIFORNIA 94701. (RP)

1114 ED 016 623
RICHMOND, RUTH KUSSMANN
INSTRUCTIONAL GUIDE FOR BASIC MATHEMATICS 1, GRADES 10 TO 12.
Los Angeles City Schools, Calif.
Report No.—X-58
Pub Date—66
Note—34P.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Arithmetic, Course Content, *Curriculum Development, Geometry, Grade 10, Grade 11, Grade 12, Low Ability Students, *Mathematics, *Secondary School Mathematics, Slow Learners, Student Characteristics, *Teaching Guides
Identifiers—CALIFORNIA, California (Los Angeles)

THIS INSTRUCTIONAL GUIDE FOR MATHEMATICS 1 OUTLINES CONTENT AND PROVIDES TEACHING SUGGESTIONS FOR A FOUNDATION COURSE FOR THE SLOW LEARNER IN THE SENIOR HIGH SCHOOL. CONSIDERATION HAS BEEN GIVEN IN THE PREPARATION OF THIS DOCUMENT TO THE STUDENT'S INTEREST LEVELS AND HIS ABILITY TO LEARN. THE GUIDE'S PURPOSE IS TO ENABLE THE STUDENTS TO UNDERSTAND AND APPLY THE FUNDAMENTAL MATHEMATICAL ALGORITHMS AND TO ACHIEVE SUCCESS AND ENJOYMENT IN WORKING WITH MATHEMATICS. THE CONTENT OF EACH UNIT INCLUDES (1) DEVELOPMENT OF THE UNIT, (2) SUGGESTED TEACHING PROCEDURES, AND (3) STUDENT EVALUATION. THE MAJOR PORTION OF THE MATERIAL IS DEVOTED TO THE FUNDAMENTAL OPERATIONS WITH WHOLE NUMBERS. IDENTIFYING AND CLASSIFYING ELEMENTARY GEOMETRIC FIGURES ARE ALSO INCLUDED. (RP)

1115 ED 016 622
RICHMOND, RUTH KUSSMANN
INSTRUCTIONAL GUIDE FOR SENIOR MATHEMATICS.
Los Angeles City Schools, Calif.
Report No.—SC-624
Pub Date—67
Note—43P.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Algebra, Arithmetic, Curriculum Guides, General Education, Geometry, Grade 12, *Mathematics, *Secondary School Mathematics, *Teaching Guides

SENIOR MATHEMATICS, WITH PRACTICAL EMPHASIS ON TOPICS FROM THE FIELDS OF ARITHMETIC, ALGEBRA, AND GEOMETRY, IS A ONE-SEMESTER COURSE FOR TWELFTH-GRADE STUDENTS. THE COURSE HAS TWO MAJOR OBJECTIVES–(1) PREPARING THE STUDENT FOR EMPLOYMENT BY IMPROVING HIS SKILLS IN THE BASIC PROCESSES OF MATHEMATICS, AND (2) PROVIDING THE STUDENTS WHO ARE ABOUT TO ENCOUNTER ADULT RESPONSIBILITIES WITH A PRACTICAL COURSE IN CONSUMER MATHEMATICS AND THE MATHEMATICS OF PERSONAL BUSINESS. THE PUBLICATION PROVIDES TEACHERS WITH (1) AN OUTLINE OF COURSE CONTENT, (2) A LIST OF TOPICS TO BE EMPHASIZED, (3) SPECIFIC TEACHING SUGGESTIONS, AND (4) ILLUSTRATIVE EXAMPLES. A SUGGESTED TIME SCHEDULE IS INCLUDED AS A MEANS OF INDICATING THE EMPHASIS RECOMMENDED FOR THE STUDY OF EACH UNIT. EVALUATION SECTIONS ACCOMPANYING EACH UNIT SERVE TO SUMMARIZE THE BASIC CONCEPTS, SKILLS, AND UNDERSTANDINGS WHICH THE STUDENT SHOULD HAVE ACQUIRED. (RP)

GEOMETRY

1200 ED 183 407

Anderson, Lyle

Intuitive Geometry. Topical Module for Use in a Mathematics Laboratory Setting.

Regional Center for Pre-Coll. Mathematics, Denver, Colo.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—73

Grant—NSF-GW-7720

Note—39p.; For related documents, see SE 030 304-322

Pub Type— Guides - Classroom - Learner (051) — Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—*Activities, *Geometric Concepts, Geometry, *Learning Laboratories, Manipulative Materials, Mathematical Enrichment, Mathematics Curriculum, *Mathematics Instruction, Puzzles, Secondary Education, *Secondary School Mathematics, Worksheets

This module utilizes hole punching with a pencil, paper folding, rubber band stretching, and unique board models to "picture" key geometric concepts in an intuitive manner. The module is virtually self-contained, except for common classroom items which are scissors and a protractor. The introductory lesson allows for a variety of approaches for the student to take as he/she experiments and looks for solutions to divergent questions. The five experiments involve inexpensive models which help the student build up a concept of key geometric ideas in a very concrete way. The module contains five enrichment cards, which involve students in problem situations that require the use of at least some of the geometric concepts stressed in the module. (Author/MK)

1201 ED 180 754

Math 1813 (PIPI): Analytic Geometry.

Oklahoma State Univ., Stillwater. Coll. of Engineering.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—[71]

Grant—NSF-GY-9310

Note—287p.; For related document, see SE 029 358

Pub Type— Guides - Classroom - Learner (051)

EDRS Price - MF01/PC12 Plus Postage.

Descriptors—Analytic Geometry, Audiovisual Aids, College Curriculum, *College Mathematics, Competency Based Education, *Higher Education, *Mastery Learning, *Mathematics Curriculum, Mathematics Instruction, Problems, *Programed Instruction, Programed Instructional Materials, Self Evaluation, *Study Guides, Transformations (Mathematics), Trigonometry

Identifiers—Conics (Mathematics), Parameters (Mathematics)

This study guide, designed for use at Oklahoma State University, contains lists of activities for students to perform based on the "mastery of learning" concept. The activities include readings, problems, self evaluations, and assessment tasks. The units included are: Lines in a Plane, Conics, Transformations, Polar Coordinates; 3-Dimensional Analytics, and Parameters. (MK)

1202 ED 173 150

Allen, Frank B. And Others

Mathematics for High School, Geometry (Part 2). Commentary For Teachers. Preliminary Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—60

Note—348p.; For related document, see ED [illegible] 624; Contains occasional light and broken type

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC14 Plus Postage.

Descriptors—*Analytic Geometry, Curriculum, *Curriculum Guides, *Geometry, *Instruction, Mathematics Education, Secondary Education, *Secondary School Mathematics

Identifiers—*Area, *School Mathematics Study Group

This is part two of a two-part manual for teachers using SMSG high school text materials. The manual contains a chapter-by-chapter commentary on the text, solutions to the problems in the text, and a collection of essays on topics related to material in the text. Chapter topics include: (1) perpendicular lines and planes in space; (2) parallel lines in a plane; (3) parallel lines in space; (4) areas of polygonal regions; (5) similarity; (6) circles and spheres; (7) loci and constructions; (8) the area of a circle and related topics; and (9) plane coordinate geometry. (MP)

1203 ED 173 139

Junior High School Mathematics Units, Volume II, Geometry. Commentary for Teachers.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—59

Note—107p.; For related documents, see SE 027 971-973; Contains occasional light and broken type

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC05 Plus Postage.

Descriptors—Curriculum, *Curriculum Guides, *Geometry, *Instruction, Junior High Schools, Mathematics Education, *Measurement, Secondary Education, *Secondary School Mathematics

Identifiers—*Estimation (Mathematics), *School Mathematics Study Group

This is volume two of a three-volume set for teachers using SMSG junior high school text materials. Each unit contains a commentary on the text, answers to all the exercises, a copy of the questionnaire used for evaluating the material, and a summary of comments by the teachers using the text. Unit topics include: (1) non-metric geometry; (2) informal geometry; and (3) measurement and approximation. (MP)

1204 ED 173 108

Junior High School Mathematics Units, Volume II, Geometry.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—59

Note—106p.; For related documents, see SE 027 914-916

Pub Type— Guides - Classroom - Learner (051)

EDRS Price - MF01/PC05 Plus Postage.

Descriptors—Curriculum, *Geometry, *Instruction, Junior High Schools, Mathematics Education, *Measurement, Secondary Education, *Secondary School Mathematics, *Textbooks

Identifiers—*Estimation (Mathematics), *School Mathematics Study Group

This is volume two of a three-volume SMSG junior high school mathematics text. This volume contains the units concerned with geometry. Unit topics include: (1) non-metric geometry; (2) informal geometry; and (3) measurement and approximation. (MP)

1205 ED 162 871

Anderson, R. D. And Others

Studies in Mathematics, Volume VII: Intuitive Geometry. Preliminary Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—61

Note—229p.; For related documents, see SE 025 372-375 and ED 143 544-557; Not available in hard copy due to marginal legibility of original document

Pub Type— Books (010)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Curriculum, Elementary Education, *Elementary School Mathematics, *Geometry, *Inservice Teacher Education, *Instructional Materials, Mathematics Education, *Teaching Guides, *Textbooks

Identifiers—*School Mathematics Study Group

This is a SMSG geometry text for elementary teachers. This volume has been prepared to help elementary teachers develop a sufficient subject matter competence in the mathematics of the elementary school program. The editors feel that elementary teachers need a thorough discussion of all the materials they might teach in grades 4, 5, and 6, from a higher point of view, but presented in much the same way they would present it. The content is the same as the 7th and 8th grade SMSG course of study, but carefully edited and presented in a manner compatible with its purpose. Chapter topics include: (1) non-metric geometry; (2) measurement; (3) parallelograms and triangles; (4) constructions and congruent triangles; (5) similar triangles and variation; (6) volumes and surface areas; (7) circles and spheres; and (8) relative error. (MP)

1206 ED 160 455

Allen, Frank B. And Others

Geometry with Coordinates, Teacher's Commentary, Part II, Unit 50. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—65

Note—314p.; For related documents, see SE 025 101-103

Pub Type— Guides - General (050)

EDRS Price - MF01/PC13 Plus Postage.

Descriptors—*Analytic Geometry, Curriculum, *Geometry, *Instruction, Mathematics Education, Secondary Education, *Secondary School Mathematics, *Teaching Guides

Identifiers—*School Mathematics Study Group

This is part two of a two-part manual for teachers using SMSG high school text materials. The commentary is organized into four parts. The first part contains an introduction and a short section on estimates of class time needed to cover each chapter. The second or main part consists of a chapter-by-chapter commentary on the text. The third part is a collection of essays on topics that cannot conveniently be dealt with in the main part of the commentary in connection with a particular passage. The fourth part contains answers to Illustrative Test Items and the solutions to the problems. Chapter topics include: coordinates in a plane; perpendicularity, parallelism, and coordinates in space; directed segments and vectors; polygons and polyhedrons; and circles and spheres. (MN)

1207 ED 160 454

Haag, V. H. And Others

Geometry with Coordinates, Teacher's Commentary, Part I, Unit 49. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—65

Note—448p.; For related documents, see SE 025 101-104

Pub Type— Guides - General (050)

EDRS Price - MF01/PC18 Plus Postage.

Descriptors—*Analytic Geometry, Curriculum, *Geometry, *Instruction, Mathematics Education, Secondary Education, *Secondary School Mathematics, *Teaching Guides

Identifiers—*School Mathematics Study Group

This is part one of a two-part manual for teachers using SMSG high school text materials. The commentary is organized into four parts. The first part contains an introduction and a short section on estimates of class time needed to cover each chapter. The second or main part consists of a chapter-by-chapter commentary on the text. The third part is a collection of essays on topics that cannot conveniently be dealt with in the main part of the commentary in connection with a particular passage. The fourth part contains answers to Illustrative Text Items and the solutions to the problems. Chapter topcis include: introduction to formal geometry; sets, points, lines, and planes; distance and coordinate systems, angles; congruence; parallelism; and similarity. (MN)

1208 ED 160 453

Allen, Frank B. And Others

Geometry with Coordinates, Student's Text, Part II, Unit 48. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—62

Note—514p.; For related documents, see SE 025 101-104

Pub Type— Books (010)

EDRS Price - MF02/PC21 Plus Postage.

Descriptors—*Analytic Geometry, Curriculum, *Geometry, *Instructional Materials, Mathematics Education, Secondary Education, *Secondary School Mathematics, *Textbooks

Identifiers—*School Mathematics Study Group

This is part two of a two-part SMSG geometry text for high school students. One of the goals of the text is the development of analytic geometry hand-in-hand with synthetic geometry. The authors emphasize that both are deductive systems and that it is useful to have more than one mode of attack in solving problems. The text begins the development of geometry synthetically and teaches the method of synthetic proof, then leads quickly to the use of coordinate systems in the remainder of the work. Chapter topics include: coordinates in a plane; perpendicularity, parallelism, and coordinates in space; directed segments and vectors; polygons and polyhedrons; and circles and spheres. (MN)

1209 ED 160 452
Allen, Frank B. And Others
Geometry with Coordinates, Student's Text, Part I, Unit 47. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—63
Note—514p.; For related documents, see SE 025 102-104
Pub Type— Books (010)
EDRS Price - MF02/PC21 Plus Postage.
Descriptors—*Analytic Geometry, Curriculum, *Geometry, *Instructional Materials, Mathematics Education, Secondary Education, *Secondary School Mathematics, *Textbooks
Identifiers—*School Mathematics Study Group

This is part one of a two-part SMSG geometry text for high school students. One of the goals of the text is the development of analytic geometry hand-in-hand with synthetic geometry. The authors emphasize that both are deductive systems and that it is useful to have more than one mode of attack in solving problems. The text begins the development of geometry synthetically and teaches the method of synthetic proof, then leads quickly to the use of coordinate systems in the remainder of the work. Chapter topics include: introduction to formal geometry; sets, points, lines, and planes; distance and coordinate systems; angles; congruence; parallelism; and similarity. (MN)

1210 ED 148 577
Geissler, Dennis Larson, Richard
Individualized Geometry: A Geometry Unit for the Intermediate Grades.
Wisconsin Univ., Eau Claire.
Pub Date—77
Note—161p.; For related documents, see SE 023 286-291; Not available in hard copy due to copyright restrictions; Contains occasional colored pages which may not reproduce well
Available from—Dr. Juanita Sorenson, University of Wisconsin-Eau Claire, Library 1109, Eau Claire, Wisconsin 54701 ($6.00)
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Curriculum, Elementary Education, *Elementary School Mathematics, *Experiential Learning, *Geometric Concepts, *Individualized Instruction, *Instructional Materials, Intermediate Grades, Teacher Education, Units of Study
Identifiers—Individually Guided Education, *Wisconsin

This geometry unit for the intermediate grades is based on the Holt Mathematics Series (levels 3-6), using the concepts of Individually Guided Education (IGE). It is divided into seven levels, one for grade 3 and two each for grades 4-6. Each is designed for both individual and group learning. A vocabulary list is used as a key for activities; a variety of worksheets is included, plus an evaluation sheet for each level. Objectives are specified. (MS)

1211 ED 143 547
Anderson, Richard D.
Studies in Mathematics, Volume V. Concepts of Informal Geometry. Preliminary Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—60
Note—280p.; For related documents, see SE 023 028-041
Pub Type— Books (010)
EDRS Price - MF01/PC12 Plus Postage.
Descriptors—Elementary School Mathematics, *Geometry, *Instructional Materials, Junior High Schools, Mathematics, *Secondary School Mathematics, Teacher Education, *Textbooks
Identifiers—*School Mathematics Study Group

The main purpose of this book is to provide background material in geometry for teachers or prospective teachers who know little or no geometry. It should be suitable as a text for a one-semester course for teachers of junior high school or upper elementary school students. Chapters contain developmental material and exercises. Chapters include: (1) Introduction; (2) Sets; (3) Logic and Geometry; (4) Abstractions and Representations; (5) Non-Metric Geometry; (6) Measurement; (7) Accuracy and Precision; (8) Congruence; (9) Parallels and Metric Properties of Triangles; (10) Areas, Volumes, and the Theorem of Pythagoras; (11) Circles, Cylinders, and Cones; (12) The Coordinate Plane and Graphs; (13) The Sphere; and (14) Non-Metric Polyhedrons. (RH)

1212 ED 143 546
Kutuzov, B. V.
Studies in Mathematics, Volume IV. Geometry.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—60
Note—582p.; For related documents, see SE 023 028-041; Contains occasional light and broken type
Pub Type— Books (010)
EDRS Price - MF03/PC24 Plus Postage.
Descriptors—*Calculus, College Mathematics, *Geometry, *Instructional Materials, Mathematics, Reference Materials, *Secondary School Mathematics, *Textbooks
Identifiers—*School Mathematics Study Group

This book is a translation of a Russian text. The translation is exact, and the language used by the author has not been brought up to date. The volume is probably most useful as a source of supplementary materials for high school mathematics. It is also useful for teachers to broaden their mathematical background. Chapters included in the text are: (1) Geometric Figures as Point Sets; (2) Geometric Constructions; (3) The Transformation of Figures; (4) Parallel Translations; (5) Rotation; (6) Symmetry; (7) Similarity; (8) Inversion; (9) The General Problem of Measuring Lengtns, Areas, and Volumes; (10) Euclid's "Elements"; (11) The Geometry of Lobachevskii; (12) The Axiomatic Structure of Geometry; and (13) The Idea of an Interpretation of a Geometric System. A selected bibliography is included. (RH)

1213 ED 143 544
Curtis, Charles W. And Others
Studies in Mathematics, Volume II. Euclidean Geometry Based on Ruler and Protractor Axioms. Second Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—61
Note—185p.; For related documents, see SE 023 029-041
Pub Type— Books (010)
EDRS Price - MF01/PC08 Plus Postage.
Descriptors—*Geometry, Inservice Education, *Instructional Materials, *Resource Materials, Secondary Education, *Secondary School Mathematics, Teacher Education, *Teaching Guides
Identifiers—*School Mathematics Study Group

These materials were developed to help high school teachers to become familiar with the approach to tenth-grade Euclidean geometry which was adopted by the School Mathematics Study Group (SMSG). It is emphasized that the materials are unsuitable as a high school textbook. Each document contains material too difficult for most high school students. It is assumed that teachers who study the notes have good backgrounds in axiomatic geometry. In particular, some familiarity with Euclid's Elements is presupposed. Chapters include: (1) Historical Introduction; (2) Logic; (3) Points, Lines, and Planes; (4) Real Numbers and the Ruler Axiom; (5) Separation in Planes and in Space; (6) Angles and the Protractor Postulates; (7) Congruence; (8) Parallelism; (9) Area; and (10) Circles and Spheres. (Author/RH)

1214 ED 143 513
Ayre, H. Glenn And Others
Analytic Geometry. Teacher's Commentary, Unit No. 65. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—65
Note—490p.; For related Student Text, see SE 022 989; Not available in hard copy due to marginal legibility of original document
Pub Type— Guides - General (050)
EDRS Price - MF02 Plus Postage. PC Not Available from EDRS.
Descriptors—Algebra, *Analytic Geometry, Geometric Concepts, *Instructional Materials, Mathematics Education, *Secondary Education, *Secondary School Mathematics, *Teaching Guides
Identifiers—*School Mathematics Study Group

This is the teacher's guide to the SMSG text ANALYTIC GEOMETRY. The text is designed to be used as a one-semester course for 12th grade students. Included in this guide are: (1) suggested length of study for each chapter; (2) discussion of each chapter that is in the student text; (3) comments keyed to the pages of the student's text to provide explanation and background for the teacher; (4) answers to exercises; and (5) discussion of supplementary materials in the text. (RH)

1215 ED 143 512
Ayre, H. Glenn And Others
Analytic Geometry. Student's Text, Unit No. 64. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—65
Note—574p.; For related Teacher's Commentary, see SE 022 990; Contains occasional light and broken type
Pub Type— Guides - General (050)
EDRS Price - MF02/PC23 Plus Postage.
Descriptors—Algebra, *Analytic Geometry, Geometric Concepts, *Instructional Materials, Mathematics Education, *Secondary Education, *Secondary School Mathematics, *Textbooks
Identifiers—*School Mathematics Study Group

This text provides a one-semester study of analytic geometry for secondary school students. It is designed for use at the 12th grade level. A deliberate effort was made to tie this text to previous SMSG texts; the usual language of sets, ordered pairs, number properties, etc. are included. This flavor is what distinguishes this book from others in the field. Ten chapters included in the book are: (1) Analytic Geometry; (2) Coordinates and the Line; (3) Vectors and their Applications; (4) Proofs by Analytic Methods; (5) Graphs and their Equations; (6) Curve Sketching and Locus Problems; (7) Conic Sections; (8) The Line and the Plane in 3-Space; (9) Quadric Surfaces; and (10) Geometric Transformations. Also included are an index and a section of supplements to the various chapters. (RH)

1216 ED 138 478
Scott, Joseph A.
Lessons on Selected Geometry Concepts Written in Expository and Discovery Modes of Presentation and a Test of Concept Mastery. Practical Paper No. 13.
Wisconsin Univ., Madison. Research and Development Center for Cognitive Learning.
Spons Agency—Office of Education (DHEW), Washington, D.C.
Pub Date—Sep 72
Contract—OEC-5-10-154
Note—215p.; Report from the Conditions of Learning and Instruction Component of Program 1; Contains occasional light and broken type
Pub Type— Guides - General (050)
EDRS Price - MF01/PC09 Plus Postage.
Descriptors—Curriculum, Educational Research, *Elementary School Mathematics, Elementary Secondary Education, *Geometric Concepts, Instruction, *Instructional Materials, Learning Activities, Mathematics Education, *Teaching Methods, *Tests, Units of Study

The lessons and test which comprise this document were used in two experiments concerning the effects of discovery and expository modes of presentation on retention and transfer. The methodology and results of the experiments are briefly summarized. Eight lessons are included: (1) two introductory lessons; (2) three lessons in the expository mode, one on triangles and two on quadrilaterals; and (3) three lessons in the discovery mode, one on triangles and two on quadrilaterals. Also included is a 28-item multiple-choice test dealing with concepts presented in the lessons on quadrilaterals. (Author/DT)

1217 ED 135 624

Allen, Frank B. And Others

Geometry, Teacher's Commentary, Part II, Unit 16. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—65

Note—361p.; For related documents, see SE 021 987-022 002 and ED 130 870-877; Contains occasional marginal legibility

Pub Type— Guides - General (050)

EDRS Price - MF01/PC15 Plus Postage.

Descriptors—*Curriculum, Elementary Secondary Education, *Geometry, *Instruction, Mathematics Education, *Secondary School Mathematics, *Teaching Guides

Identifiers—*School Mathematics Study Group

This sixteenth unit in the SMSG secondary school mathematics series is the teacher's commentary for Unit 14. For each of the chapters in Unit 14, a guide to the selection of problems is provided, the goals for that chapter are discussed, the mathematics is explained, some teaching suggestions are given, the answers to exercises are listed, and sample test questions for that chapter are included. A final section, labelled "Talks to Teachers," discusses facts and theories; equality, congruence, and equivalence; the concept of congruence; introduction to non-Euclidean geometry; miniature geometries; and area. (DT)

1218 ED 135 623

Allen, Frank B. And Others

Geometry, Teacher's Commentary, Part I, Unit 15. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—65

Note—267p.; For related documents, see SE 021 987-022 002 and ED 130 870-877; Contains occasional light and broken type

Pub Type— Guides - General (050)

EDRS Price - MF01/PC11 Plus Postage.

Descriptors—*Curriculum, Elementary Secondary Education, *Geometry, *Instruction, Mathematics Education, *Secondary School Mathematics, *Teaching Guides

Identifiers—*School Mathematics Study Group

This fifteenth unit in the SMSG secondary school mathematics series is the teacher's commentary for Unit 13. A time allotment for each of the chapters in Units 13 and 14 is suggested. Then, for each of the chapters in Unit 13, a guide for the selection of problems is provided, the goals for that chapter are discussed, the mathematics is explained, some teaching suggestions are given, and the answers to exercises are listed. For each of the chapters except the first, sample test questions are included. (DT)

1219 ED 135 622

Allen, Frank B. And Others

Geometry, Student's Text, Part II, Unit 14.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—61

Note—395p.; For related documents, see SE 021 987-022 002 and ED 130 870-877

Pub Type— Books (010)

EDRS Price - MF01/PC16 Plus Postage.

Descriptors—*Curriculum, Elementary Secondary Education, *Geometry, Instruction, *Instructional Materials, Mathematics Education, *Secondary School Mathematics, *Textbooks

Identifiers—*School Mathematics Study Group

Unit 14 in the SMSG secondary school mathematics series is a student text covering the following topics in geometry: areas of polygonal regions, similarity, circles and spheres, characterization of sets, constructions, areas of circles and sectors, volumes of solids, and plane coordinate geometry. Appendices cover Eratosthenes' measurement of the earth, rigid motions, proof of the two-circle theorem, trigonometry, and regular polyhedra. (DT)

1220 ED 135 621

Allen, Frank B. And Others

Geometry, Student's Text, Part I, Unit 13. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—65

Note—378p.; For related documents, see SE 021 987-022 002 and ED 130 870-877; Contains occasional light and broken type

Pub Type— Books (010)

EDRS Price - MF01/PC16 Plus Postage.

Descriptors—*Curriculum, Elementary Secondary Education, *Geometry, Instruction, *Instructional Materials, Mathematics Education, *Secondary School Mathematics, *Textbooks

Identifiers—*School Mathematics Study Group

Unit 13 in the SMSG secondary school mathematics series is a student text covering the following topics in geometry: common sense and organized knowledge; sets, real numbers, and lines; lines, planes, and separation; angles and triangles; congruences; proof; geometric inequalities; perpendicular lines and planes in space; parallel lines in a plane; and parallels in space. Appendices cover symbols, postulates of addition and multiplication, rational and irrational numbers, square roots, how to draw figures in 3-space, and proof of theorems on perpendicularity. (DT)

1221 ED 127 190

Sohre, Beverly, Ed.

Parts and Pieces: MINNEMAST Coordinated Mathematics - Science Series, Unit 22.

Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—70

Note—138p.; For related documents, see SE021201-234; Photographs may not reproduce well

Available from—MINNEMAST, Minnemath Center, 720 Washington Ave., S.E., Minneapolis, MN 55414

Pub Type— Guides - General (050)

EDRS Price - MF01/PC06 Plus Postage.

Descriptors—*Curriculum Guides, Elementary Education, *Elementary School Mathematics, *Elementary School Science, Experimental Curriculum, Fractions, *Interdisciplinary Approach, Learning Activities, Mathematics Education, *Measurement, Primary Education, Process Education, Science Education, Units of Study

Identifiers—*MINNEMAST, *Minnesota Mathematics and Science Teaching Project

This volume is the twenty-second in a series of 29 coordinated MINNEMAST units in mathematics and science for kindergarten and the primary grades. Intended for use by second-grade teachers, this unit guide provides a summary and overview of the unit, a list of materials needed, and descriptions of seven groups of lessons. The purposes and procedures for each activity are discussed. Examples of questions and discussion topics are given, and in several cases ditto masters, stories for reading aloud, and other instructional materials are included in the book. The distinction between counting measure and measure of amount is introduced in the first lesson. Subsequent lessons deal with the use of fractions in the measurement of weight, length, Mag of angles, time and area. In the final section, rules for calculation with fractions are developed. (SD)

1222 ED 127 189

Biersteker, Joseph And Others

Angles and Space: MINNEMAST Coordinated Mathematics - Science Series, Unit 21.

Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—71

Note—169p.; For related documents, see SE021201-234; Photographs may not reproduce well

Available from—MINNEMAST, Minnemath Center, 720 Washington Ave., S.E., Minneapolis, MN 55414

Pub Type— Guides - General (050)

EDRS Price - MF01/PC07 Plus Postage.

Descriptors—*Curriculum Guides, Elementary Education, *Elementary School Mathematics, *Elementary School Science, Experimental Curriculum, *Geometric Concepts, Geometry, *Interdisciplinary Approach, Learning Activities, Mathematics Education, Primary Education, Process Education, Science Education, Units of Study

Identifiers—*MINNEMAST, *Minnesota Mathematics and Science Teaching Project

This volume is the twenty-first in a series of 29 coordinated MINNEMAST units in mathematics and science for kindergarten and the primary grades. Intepded for use by second-grade teachers, this unit guide provides a summary and overview of the unit, a list of materials needed, and descriptions of three groups of lessons. The purposes and procedures for each activity are discussed. Examples of questions and discussion topics are given, and in several cases ditto masters, stories for reading aloud, and other instructional materials are included in the book. The first section of this unit is concerned with angles and their measurement. The unit of measurement used is called a Mag and angles are measured with a special circular protractor. The other sections deal with polygons and polyhedra. (SD)

1223 ED 127 182

Blair, Kay W. Forseth, Sonia D.

Exploring Symmetrical Patterns: MINNEMAST Coordinated Mathematics - Science Series, Unit 14.

Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—71

Note—115p.; For related documents, see SE021201-234; Photographs may not reproduce well; Colored transparencies removed from document due to poor reproducibility

Available from—MINNEMAST, Minnemath Center, 720 Washington Ave., S.E., Minneapolis, MN 55414

Pub Type— Guides - General (050)

EDRS Price - MF01/PC05 Plus Postage.

Descriptors—*Curriculum Guides, Elementary Education, *Elementary School Mathematics, *Elementary School Science, Experimental Curriculum, *Interdisciplinary Approach, Learning Activities, Mathematics Education, Primary Education, Process Education, Science Education, *Symmetry, Units of Study

Identifiers—*MINNEMAST, *Minnesota Mathematics and Science Teaching Project

This volume is the fourteenth in a series of 29 coordinated MINNEMAST units in mathematics and science for kindergarten and the primary grades. Intended for use by first-grade teachers, this unit guide provides a summary and overview of the unit, a list of materials needed, and descriptions of five groups of lessons and activities. The purposes and procedures for each activity are discussed. Examples of questions and discussion topics are given, and in several cases ditto masters, stories for reading aloud, and other instructional materials are included in the book. This unit continues the study of symmetry begun in Unit 7 of this series. The five sections are devoted to: (1) rotational symmetry, (2) repeating patterns and translational symmetry, (3) bilateral symmetry, (4) symmetry in sound and movement, and (5) other interesting patterns. (SD)

1224 ED 127 178

Kraby, James Rieff, Marilyn

Describing Locations: MINNEMAST Coordinated Mathematics - Science Series, Unit 10.

Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—71

Note—100p.; For related documents, see SE021201-234; Photographs may not reproduce well

Available from—MINNEMAST, Minnemath Center, 720 Washington Ave., S.E., Minneapolis, MN 55414

Pub Type— Guides - General (050)

EDRS Price - MF01/PC04 Plus Postage.

Descriptors—*Curriculum Guides, Elementary Education, *Elementary School Mathematics, *Elementary School Science, Experimental Curriculum, *Geometric Concepts, *Interdisciplinary Approach, Learning Activities, Mathematics Education, Primary Education, Process Education, Science Education, Units of Study

Identifiers—*MINNEMAST, *Minnesota Mathematics and Science Teaching Project

This volume is the tenth in a series of 29 coordinated MINNEMAST units in mathematics and science for kindergarten and the primary grades. Intended for use by first-grade teachers, this unit guide provides a summary and overview of the unit, a list of materials needed, and descriptions of two groups of activities. The purposes and procedures for each activity are discussed. Examples of questions and discussion topics are given, and in several cases ditto masters, stories for reading aloud, and other instructional materials are included in the book. This volume introduces the basic geometric notion of linearity, and provides activities related to the use of properties of lines in determining positions of objects. Lessons are organized into two sections: (1) lines, direction and location, and (2) locations and maps. A master for a "take-home fun activity" related to location of places on a map is also included. (SD)

1226 ED 127 175
Blair, Kay W. Forseth, Sonja D.
Introducing Symmetry: MINNEMAST Coordinated Mathematics - Science Series, Unit 7.
Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—71
Note—83p.; For related documents, see SE021201-234; Photographs may not reproduce well; Transparencies in this document removed due to poor reproducibility
Available from—MINNEMAST, Minnemath Center, 720 Washington Ave., S.E., Minneapolis, MN 55414
Pub Type— Guides - General (050)
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—*Curriculum Guides, Elementary Education, *Elementary School Mathematics, *Elementary School Science, Experimental Curriculum, *Interdisciplinary Approach, Learning Activities, Mathematics Education, Primary Education, Process Education, Science Education, *Symmetry, Units of Study
Identifiers—*MINNEMAST, *Minnesota Mathematics and Science Teaching Project

This volume is the seventh in a series of 29 coordinated MINNEMAST units in mathematics and science for kindergarten and the primary grades. Intended for use by kindergarten teachers, this unit guide provides a summary and overview of the unit, a list of materials needed, and descriptions of four groups of activities. The purposes and procedures for each activity are discussed. Examples of questions and discussion topics are given, and in several cases ditto masters, stories for reading aloud, and other instructional materials are included in the book. The sections of this unit concern: (1) rotational symmetry, (2) repeating patterns, (3) bilateral symmetry; and (4) symmetry in sound and movement. A bibliography of books related to symmetry is provided for the teacher. (SD)

1227 ED 123 096
Transformations 1, Pupils' Pamphlet.
University of the South Pacific, Suva (Fiji).
Pub Date—[76]
Note—32p.; Trial material prepared by UNDP Curriculum Development Unit
Pub Type— Books (010)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Geometric Concepts, Geometry, *Learning Activities, Mathematics Education, *Pattern Recognition, Secondary Education, *Secondary School Mathematics, *Transformations (Mathematics), Worksheets

This pamphlet introduces the student to the basic ideas and procedures of transformational geometry through a series of worksheets. After developing intuitively the idea of rigid motion, vector diagrams are introduced, and translations are discussed in some detail. (SD)

1228 ED 123 071
Cosler, Norma, Ed.
Individualized Math Problems in Geometry. Oregon Vo-Tech Mathematics Problem Sets.
Oregon Math Education Council, Salem.; Oregon State Dept. of Education, Salem. Career and Vocational Education Section.
Pub Date—74
Note—105p.; For related documents, see SE 020 628-648
Available from—Continuing Education Publications, P.O. Box 1491, Portland, Oregon 97207
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Geometry, Individualized Instruction, *Instructional Materials, Mathematical Applications, Mathematics Education, Measurement, *Problem Sets, Secondary Education, *Secondary School Mathematics, *Vocational Education
Identifiers—*Oregon Vo Tech Math Project

This is one of eighteen sets of individualized mathematics problems developed by the Oregon Vo-Tech Math Project. Each of these problem packages is organized around a mathematical topic and contains problems related to diverse vocations. Solutions are provided for all problems. The volume contains problems in applied geometry. Measurement of perimeters, areas, and volumes, as well as angle measurmeent and the use of the Pythagorean Theorem, form the basis for most of the problems included. Problems are drawn from eleven vocational areas: fire and police science, aviation mechanics, industrial mechanics, forest products, auto mechanics, electronics, drafting, machine tools, food processing, forestry, and agriculture. (SD)

1229 ED 116 939
Wenninger, Magnus J.
Polyhedron Models for the Classroom. Second Edition.
National Council of Teachers of Mathematics, Inc., Reston, Va.
Pub Date—75
Note—64p.; For an earlier edition, see ED 038 271
Available from—National Council of Teachers of Mathematics, 1906 Association Drive, Reston, Virginia 22091 ($1.40, discounts on quantity orders)
Pub Type— Books (010)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—College Mathematics, Construction (Process), *Experiential Learning, Geometric Concepts, *Geometry, *Instructional Materials, Mathematical Enrichment, *Mathematical Models, Mathematics Materials, Secondary Education, *Secondary School Mathematics
Identifiers—National Council of Teachers of Mathematics, *Polyhedrons

This second edition explains the historical background and techniques for constructing various types of polyhedra. Seven center-fold sheets are included, containing full-scale drawings from which nets or templates may be made to construct the models shown and described in the text. Details are provided for construction of the five Platonic solids, the thirteen Archimedean solids, stellations or compounds, and other miscellaneous polyhedra. The models may be used to illustrate the ideas of symmetry, reflection, rotation, and translation. Included is a bibliography of related sources. (Author/JBW)

1230 ED 113 192
Suggestions for Teaching Mathematics Using Laboratory Approaches Grades 1-6. 3. Geometry. Experimental Edition.
New York State Education Dept., Albany. Bureau of Elementary Curriculum Development.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C. Div. of Compensatory Education.
Pub Date—74
Note—28p.; Related documents are SE 019 740-743
Pub Type— Guides - General (050)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Elementary Education, *Elementary School Mathematics, *Geometric Concepts, Geometry, Guides, Instructional Materials, *Laboratory Manuals, *Manipulative Materials, Mathematics Materials, Teacher Developed Materials, *Teaching Guides
Identifiers—Elementary Secondary Education Act Title I

This guide describes activities and materials which can be used in a mathematics laboratory approach to a basic mathematics program for grades 1-6. Thirty-five activities pertaining to geometric concepts are described in terms of purpose, suggested grade levels, materials needed, and procedures. Some concepts included in the guide are: basic shapes, set classification, similarities, differences, symmetry, congruency, puzzle recreations, special properties of geometric figures, conservation, recognition of geometric shapes, geometric solids, geometric problem solving, geometric tool use (protractor, compass, ruler), pattern discoveries, measurements with polygons, vocabulary, relationships between area and volume, estimation, volume, fractional parts, and globe activities. The guide concludes with a list of selected manipulative materials for mathematics laboratory use. (JBW)

1231 ED 113 165
Shah, Sair Ali
Topological Equivalence of Objects. Teacher's Guide for Use with Stretching and Bending. Working Paper No. 18a.
Georgia Univ., Athens. Research and Development Center in Educational Stimulation.
Spons Agency—Office of Education (DHEW), Washington, D.C. Cooperative Research Program.
Report No.—Center No-5-0250; WP-18a
Pub Date—Oct 69
Contract—OEC-6-10-061
Note—22p.
Pub Type— Guides - General (050)
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Curriculum, Elementary Education, *Elementary School Mathematics, Experiential Learning, *Experimental Curriculum, Learning, *Mathematical Concepts, *Mathematics Education, Primary Education, *Topology

The notions of topological equivalence for one-, two-, and three-dimensional figures, as well as for graphs and networks, are developed for classroom use with children between the ages of three and ten. Properties of open and closed curves are also examined. This manual, addressed to the teacher, describes several activities related to each concept to be introduced. In order to implement this material, the teacher would need plastic clay, colored beads, and wire or pipe cleaners for each student. (SD)

1232 ED 113 164
Bending and Stretching.
Georgia Univ., Athens. Research and Development Center in Educational Stimulation.
Pub Date—[69]
Note—21p.
Pub Type— Guides - General (050)
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—*Discovery Learning, Elementary Education, *Elementary School Mathematics, *Mathematical Concepts, Mathematics Education, Networks, Pattern Recognition, Serial Ordering, *Topology, *Workbooks

This 19-page workbook presents the elementary student with topological concepts through sequences of pictures with related questions. Generally the questions ask, "How are the pictures different?" and "How are they the same?" Several topological concepts are presented in this manner: connectivity, number of holes, closed and open curves, networks, and serial order. (SD)

1233 ED 108 963
Olson, Alton T.
Mathematics Through Paper Folding.
National Council of Teachers of Mathematics, Inc., Washington, D.C.
Pub Date—75
Note—66p.; See ED 077 711 for earlier edition
Available from—National Council of Teachers of Mathematics, Inc., 1906 Association Drive, Reston, Virginia 22091
Pub Type— Books (010)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Experiential Learning, *Geometric Concepts, *Instruction, *Laboratory Procedures, *Manipulative Materials, Mathematical Enrichment, Mathematics Education, Secondary Education, *Secondary School Mathematics

This booklet is a revised edition of Donovan Johnson's "Paper Folding for the Mathematics Class" (ED 077 711). It begins with directions for folding basic constructions such as as a straight line, the line perpendicular to a given line passing through a given point, and the bisector of an angle. Subsequent chapters cover concepts related to reflections, circle relationships, star and polygon constructions, symmetry, conic sections, algebra by paper folding, polygons constructed by typing paper knots, and recreations such as the Mobius strip and pop-up dodecahedra. Appendices list theorems that can be demonstrated by paper folding and display large-scale figures related to some constructions. (SD)

1234 ED 100 701
Independent Study Project, Topic: Topology.
Notre Dame High School, Easton, Pa.
Pub Date—74
Note—24p.
Pub Type— Guides - General (050)
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Enrichment, Experiential Learning, Independent Study, *Individualized Instruction, Mathematical Concepts, *Mathematical Enrichment, *Secondary School Mathematics, Teacher Developed Materials, *Topology, *Worksheets

Using this guide and the four popular books noted in it, a student, working independently, will learn about some of the classical ideas and problems of topology: the Meobius strip and Klein bottle, the four color problem, genus of a surface, networks, Euler's formula, and the Jordan Curve Theorem. The unit culminates in a project of the students' choosing; recommended projects are designed to be shared with others and could be placed in a mathematics laboratory. Worksheets, answers to exercises, and a review test are provided. (SD)

1235 ED 098 059
Holland, Bill
Learning Activity Package, Geometry 114, LAPs 37-45.
Ninety Six High School, S. C.
Pub Date—[73]
Note—151p.; See ED 069 506 for the first three LAPs in this geometry course
Pub Type— Guides - General (050)
EDRS Price - MF01/PC07 Plus Postage.
Descriptors—Curriculum, *Geometry, *Individualized Instruction, *Instructional Materials, *Learning Modules, Mathematics Education, Objectives, *Secondary School Mathematics, Teacher Developed Materials, Teaching Guides, Units of Study

A set of nine teacher-prepared Learning Activity Packages (LAPs) in geometry, these units cover the topics of proof; geometric inequalities; perpendicular lines and planes in space; parallel lines in a plane, and parallel lines and planes; polygonal regions and areas; similarity; plane coordinate geometry; circles and spheres; and characterization and construction. The units each include a rationale for the material being covered, a list of behavioral objectives, a list of resources which indicate reading assignments from texts and which specify problem sets for the students to complete, a student self-evaluation sheet, suggestions for advanced study, and references. (DT)

1236 ED 094 994
Luce, Marjory Muckey, Roy
Mathematics for the Elementary School, Unit 16, Squareville.
Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—65
Note—100p.
Pub Type— Guides - General (050)
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—*Analytic Geometry, Curriculum, *Elementary School Mathematics, Experiential Learning, Geometric Concepts, *Graphs, Instruction, *Instructional Materials, *Teaching Guides, Units of Study, Worksheets
Identifiers—Group Theory, MINNEMAST, *Minnesota Mathematics and Science Teaching Project, Pascal Triangle, Vectors (Mathematics)

The Minnesota School Mathematics and Science Teaching (MINNEMAST) Project is characterized by its emphasis on the coordination of mathematics and science in the elementary school curriculum. Units are planned to provide children with activities in which they learn various concepts from both subject areas. Each subject is used to support and reinforce the other where appropriate, with common techniques and concepts being sought and exploited. Content is presented in story fashion. The stories serve to introduce concepts and lead to activities. Imbedded in the pictures that accompany the stories are examples of the concepts presented. This unit introduces students to the Cartesian coordinate system and, in particular, to the graph of a linear equation. Ideas associated with Pascal's triangle, groups, and vector spaces are also introduced informally. Worksheets and commentaries to the teacher are provided and additional activities are suggested. (JP)

1237 ED 094 992
Glaus, Marlene, Ed. Myers, Donald E., Ed.
Mathematics for the Elementary School, Unit 14, Symmetry.
Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—65
Note—80p.
Pub Type— Guides - General (050)
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—Curriculum, *Elementary School Mathematics, Experiential Learning, *Geometric Concepts, Instruction, *Instructional Materials, Pattern Recognition, *Symmetry, *Teaching Guides, Units of Study, Worksheets
Identifiers—MINNEMAST, *Minnesota Mathematics and Science Teaching Project

The Minnesota School Mathematics and Science Teaching (MINNEMAST) Project is characterized by its emphasis on the coordination of mathematics and science in the elementary school curriculum. Units are planned to provide children with activities in which they learn various concepts from both subject areas. Each subject is used to support and reinforce the other where appropriate, with common techniques and concepts being sought and exploited. Content is presented in story fashion. The stories serve to introduce concepts and lead to activities. Imbedded in the pictures that accompany the stories are examples of the concepts presented. This unit extends the work on symmetry presented in an earlier unit. As well as mirror reflections and translatory motion, symmetry about a point is developed. Activities focus on finding and creating patterns. In the process children are led to discover a number of geometric relationships. Worksheets and commentaries to the teacher are provided and additional activities are suggested. (JP)

1238 ED 094 987
Powell, Bonnie, Ed. Myers, Donald E., Ed.
Mathematics for the Elementary School, Unit 6, Symmetry.
Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—65
Note—47p.
Pub Type— Guides - General (050)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Curriculum, *Elementary School Mathematics, Experiential Learning, *Geometric Concepts, Instruction, *Instructional Materials, Pattern Recognition, *Symmetry, *Teaching Guides, Units of Study, Worksheets
Identifiers—MINNEMAST, *Minnesota Mathematics and Science Teaching Project

The Minnesota School Mathematics and Science Teaching (MINNEMAST) Project is characterized by its emphasis on the coordination of mathematics and science in the elementary school curriculum. Units are planned to provide children with activities in which they learn various concepts from both subject areas. Each subject is used to support and reinforce the other where appropriate, with common techniques and concepts being sought and exploited. Content is presented in story fashion. The stories serve to introduce concepts and lead to activities. Imbedded in the pictures that accompany the stories are examples of the concepts presented. This unit presents a fundamental geometric concept of rigid motion. Two types of simple motion are presented to help children to find what patterns are unchanged by these motions; the two forms are simple translatory symmetry or repeating patterns, and bilateral symmetry or mirror reflection. In the process, children discover a number of geometrical relationships. This unit will provide the initial formative concepts necessary for various operations with symmetry. Worksheets and commentaries to the teacher are provided and additional activities are suggested. (JP)

1239 ED 094 982
Powell, Bonnie, Ed. And Others
Mathematics for the Elementary School, Unit 1, Geometry.
Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—65
Note—65p.
Pub Type— Guides - General (050)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—*Curriculum, *Elementary School Mathematics, Experiential Learning, *Geometric Concepts, Instruction, *Instructional Materials, *Teaching Guides, Topology, Worksheets
Identifiers—MINNEMAST, *Minnesota Mathematics and Science Teaching Project

The Minnesota School Mathematics and Science Teaching (MINNEMAST) Project is characterized by its emphasis on the coordination of mathematics and science in the elementary school curriculum. Units are planned to provide children with activities in which they learn various concepts from both subject areas. Each subject is used to support and reinforce the other where appropriate, with common techniques and concepts being sought and exploited. Content is presented in story fashion. The stories serve to introduce concepts and lead to activities. Imbedded in the pictures that accompany the stories are examples of the concepts presented. This unit presents several common geometric concepts. The figures presented in the first story are square, circle, triangle, and oblong. The lessons center on recognition of these shapes in common objects. The second story introduces topological properties of simple and non-simple curves. Worksheets and commentaries to the teacher are provided and additional activities are suggested. (JP)

1240 ED 093 709
Waite, Jack
Proofs in Geometry, Mathematics (Experimental): 5218.23.
Dade County Public Schools, Miami, Fla.
Pub Date—72
Note—15p.; An Authorized Course of Instruction for the Quinmester Program
Pub Type— Guides - General (050)
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Behavioral Objectives, *Curriculum, Geometric Concepts, *Geometry, Instruction, Mathematics, Mathematics Education, *Objectives, *Secondary School Mathematics, *Teaching Guides, Tests
Identifiers—Proof (Mathematics), *Quinmester Program

Designed for students who have mastered the skills and concepts in the regular geometry series of the Quinmester Program, this guidebook presents an additional course on the study of the nature of proof, using a Euclidean geometry model. The development of techniques of formal proof is simplified through the liberal use of partially-constructed proofs ready for completion. Overall course goals are specified, a course outline is provided, performance objectives are listed, and text references keyed to the performance objectives are included. Also included is a short annotated bibliography. (JP)

1241 ED 093 708
Waite, Jack
Nature of Proof, Mathematics (Experimental): 5228.33.
Dade County Public Schools, Miami, Fla.
Pub Date—72
Note—15p.; An Authorized Course of Instruction for the Quinmester Program
Pub Type— Guides - General (050)
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Behavioral Objectives, *Curriculum, *Geometry, Instruction, Mathematics, Mathematics Education, *Objectives, *Secondary School Mathematics, *Teaching Guides, Tests
Identifiers—Proof (Mathematics), *Quinmester Program

This guidebook on minimum course content presents a study of the nature and methods of proof, using Euclidean geometry as a model. A more rigorous and formal course than usually offered, it is intended for the student who plans to study advanced mathematics. Overall course goals are specified, a course outline is provided, performance objectives are listed, and text references keyed to the performance objectives are provided. A short annotated bibliography is also included. (JP)

1242 ED 093 706
Lasoff, Edward M.
Geometric Game Strategy, Mathematics (Experimental): 5209.55.
Dade County Public Schools, Miami, Fla.
Pub Date—72
Note—41p.; An Authorized Course of Instruction for the Quinmester Program. A related document is ED 079 129
Pub Type— Guides - General (050)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Behavioral Objectives, *Curriculum, Game Theory, Instruction, *Mathematical Enrichment, Mathematics Education, *Objectives, Problem Solving, Puzzles, *Secondary School Mathematics, *Teaching Guides, Tests
Identifiers—*Quinmester Program

Designed for the student who has completed the geometry series in the Quinmester Program, this guidebook on minimum course content provides an investigation of challenging mathematical activities which are not usually developed in other mathematics courses. The content includes brainteasers, puzzles, and game theory. Overall course objectives are specified, a course outline is provided, performance objectives are listed, and references keyed to the performance objectives are provided. A sample posttest is included along with a 94-item annotated bibliography. (JP)

1243 ED 088 998
Geometry; Curriculum Guide.
Harlandale Independent School District, San Antonio, Tex. Career Education Center.
Spons Agency—Office of Education (DHEW), Washington, D.C.; Texas Education Agency, Austin. Dept. of Occupational Education and Technology.
Pub Date—[70]
Note—102p.
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—Audiovisual Aids, *Career Education, *Curriculum Guides, *Educational Objectives, Educational Resources, *Geometry, Performance Specifications, Resource Materials, *Secondary Education, Teaching Methods, Units of Study
Identifiers—Texas

The purpose of this curriculum guide is to help the geometry teacher in his endeavor to fulfill his teaching responsibilities. Space is provided for teachers' additions, deletions, notes, and criticisms which will be useful when the guide is revised. The guide is arranged in vertical columns relating the geometry curriculum concepts to: curriculum performance objectives, career concepts and performance objectives, suggested teaching methods, and audio-visual and resource materials. An outline is included at the beginning of the guide connecting its topics with the geometry textbook used in the school district. Sources of audio-visual material are listed at the end. (DS)

1244 ED 086 540
Josepher, Nelda Temple, Aline
Geometry 3, Mathematics (Experimental): 5228.-32.
Dade County Public Schools, Miami, Fla.
Pub Date—71
Note—132p.; An Authorized Course of Instruction for the Quinmester Program
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—Behavioral Objectives, *Curriculum, Enrichment Activities, *Geometry, Instruction, Mathematics Education, Measurement, Metric System, *Objectives, *Secondary School Mathematics, *Teaching Guides, Tests, Topology
Identifiers—*Quinmester Program

This is the second of a two quin series which introduces the student to all the theorems usually included in high school geometry; emphasis is on understanding and use of these theorems without proof. The course develops definitions and properties of the plane and solid figures and formulates methods for finding their linear measure, lateral and total area measure, and volume measures. New material and enrichment activities include the following topics: application of metric measure, right triangle trigonometry, coordinate geometry, tanagrams, tesselations, flexagons, projections, polyhedral models, topology, non-Euclidean geometry, and architectural design applications. Overall course goals are specified; a course outline, performance objectives, and suggested teaching strategies are listed. (JP)

1245 ED 086 538
SFT Symmetry, Mathematics (Experimental): 5212.48.
Dade County Public Schools, Miami, Fla.
Pub Date—71
Note—19p.; An Authorized Course of Instruction for the Quinmester Program
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Behavioral Objectives, *Curriculum, *Geometric Concepts, Instruction, Mathematics Education, *Objectives, *Secondary School Mathematics, *Teaching Guides, Tests
Identifiers—*Quinmester Program

This is the third in a series of four guidebooks on minimum course content designed to develop geometric concepts intuitively, using the "slides, flips, and turns" approach developed by the University of Illinois, Committee on School Mathematics. Topics include the development of the concept of symmetry, triangles and quadrilateral classifications, parallel and perpendicular lines and work with directed numbers. Overall course goals are specified; a course outline, performance objectives and suggested teaching strategies are listed. A pretest and a posttest are also included. (JP)

1246 ED 084 168
SFT Measurement and Construction, Mathematics (Experimental): 5212.49.
Dade County Public Schools, Miami, Fla.
Pub Date—72
Note—19p.; An Authorized Course of Instruction for the Quinmester Program
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Behavioral Objectives, *Curriculum, *Geometric Concepts, Instruction, Mathematics Education, *Objectives, *Secondary School Mathematics, *Teaching Guides, Tests
Identifiers—*Quinmester Program

This the fourth in a series of four guidebooks on minimum course content designed to develop geometric concepts intuitively, using the "slide, flips, and turns" approach developed by the University of Illinois Committee on School Mathematics. Topics covered are: area; ratio; similarity; construction using ruler, compass, and protractor; and work with directed numbers. Overall course goals are specified; a course outline, performance objectives and suggested teaching strategies are listed. A pretest and a posttest are also included. (JP)

1247 ED 084 163
Waite, Jack
Geometric Construction, Mathematics: 5211.61.
Dade County Public Schools, Miami, Fla.
Pub Date—72
Note—31p.; An Authorized Course of Instruction for the Quinmester Program
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Behavioral Objectives, *Curriculum, *Geometric Concepts, Instruction, Mathematics Education, *Objectives, *Secondary School Mathematics, *Teaching Guides, Tests
Identifiers—*Quinmester Program

An optional guidebook designed to follow the study of Mathematical Structures, this booklet specifies minimum course content for introductory geometric constructions and concepts. It includes the use of geometry tools, and covers basic geometric figures and congruence, angles, perpendiculars and parallels, triangles, perimeter and circumference, area and volume, symmetry, and similarity. Overall course goals are listed, teaching strategies suggested, performance objectives stated, a course outline provided, and textbook references keyed to the outline are included. Test items are given, plus an annotated listing of seven references. (DT)

1248 ED 080 365
Madeheim, James
Geometry [Sahuarita High School Career Curriculum Project].
Sahuarita High School District 130, Ariz.
Pub Date—[73]
Note—248p.
EDRS Price - MF01/PC10 Plus Postage.
Descriptors—Activity Units, Curriculum Guides, *Geometric Concepts, *Instructional Materials, Logic, Mathematics Education, Ratios (Mathematics), *Secondary School Mathematics, Teacher Developed Materials, Trigonometry, *Units of Study
Identifiers—Proof (Mathematics)

This volume contains a series of teacher-developed units to supplement the textbook in a high school geometry course. Each unit contains a statement of objectives, content discussion, worksheets, and activity suggestions. Major topics include logic, proofs, ratio and proportion, similarity, and trigonometry. Practical applications are given in each unit where possible. Related volumes in the series are SE 016 through SE 016 617. (LS)

1249 ED 079 129
Josepher, Nelda Temple, Aline
Geometry 2, Mathematics (Experimental): 5218.-22.
Dade County Public Schools, Miami, Fla.
Pub Date—71
Note—74p.; An Authorized Course of Instruction for the Quinmester Program
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Behavioral Objectives, Curriculum, *Geometry, Instruction, Mathematics Education, *Objectives, *Secondary School Mathematics, *Teaching Guides, Tests
Identifiers—*Quinmester Program

This is the second of two guidebooks on minimum course content for high school geometry, and is designed for the student who has mastered the skills and concepts of Geometry I and who had a final average of low B or less. Emphasis is on understanding and use of theorems without proof. This course develops definitions and properties of triangles, quadrilaterals, circles, polygons, and solid figures. Methods for finding linear measures, lateral and total measures, and volume measures are formulated; the Pythagorean Theorem and special right triangle relationships are developed. Overall course goals are stated, then for each of the topics there is a list of performance objectives, textbook references, course content, and suggested learning activities. Sample posttest items, an annotated bibliography of 16 books, and a list of films, filmstrips, and transparencies are included. (DT)

1250 ED 070 646
Congruent Transformations. A Workshop Approach for Grade 9 Students.
Halton County Board of Education, Burlington (Ontario).
Note—41p.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Congruence, Curriculum, Experiential Learning, *Geometric Concepts, Instruction, *Instructional Materials, *Laboratory Procedures, Mathematics Education, *Secondary School Mathematics, *Transformations (Mathematics), Units of Study, Worksheets

This instructional unit uses an intuitive approach in introducing the concept of congruent transformations. Extensive use is made of worksheets and manipulative methods. In the latter stages, the SSS, ASA, and SAS theorems are presented. The unit concludes with geometric proofs requiring the use of the fact that corresponding parts of congruent triangles are congruent. (LS)

1251 ED 070 645
Introduction of Solids, Faces, Points and Lines, Synthesis.
Halton County Board of Education, Burlington (Ontario).
Note—74p.
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Curriculum, Discovery Learning, *Elementary School Mathematics, *Experiential Learning, *Geometric Concepts, Instruction, *Instructional Materials, *Laboratory Procedures, Manipulative Materials, Mathematics Education, Units of Study

This is a series of four units introducing the concepts of solids, faces of solids, points, lines, and planes. Emphasis is placed on the discovery approach with a maximum of manipulation and experimentation on the part of the children. Each unit has suggested activities that include games, individual projects, worksheets, and discussion questions. Some objectives and sample evaluative questions are included. (LS)

1252 ED 069 537
Activities in Geometry, Grades 4-6.
Halton County Board of Education, Burlington (Ontario).
Pub Date—[72]
Note—98p.
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—Curriculum, *Elementary School Mathematics, Experiential Learning, *Geometric Concepts, *Graphs, Instruction, *Instructional Materials, Intermediate Grades, Laboratory Procedures, Mathematics Education, *Measurement, Worksheets

This is a collection of activities for individual or small group work. All can be done with a minimum of teacher direction. Major topics are: (1) measurement–length, area, and volume; (2) geometric shapes–triangles, quadrilaterals, polygons, and three-dimensional; (3) graphing in the plane and use of statistical graphs; and (4) angular measurement and circles. Most sections have worksheets, explanations, examples, and questions for discussion. (LS)

1253 ED 069 536
Herman, Daniel L.
Similarity and Congruence, Teacher's Guide.
Oakland County Schools, Pontiac, Mich.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—Mar 71
Grant—OEG-68-05635-0
Note—102p.; Revised Edition
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—Classification, *Congruence, Curriculum, *Geometric Concepts, Instruction, *Instructional Materials, Low Ability Students, Mathematics Education, Objectives, Ratios (Mathematics), *Secondary School Mathematics, *Teaching Guides, Units of Study
Identifiers—Elementary Secondary Education Act Title III

This guide to accompany "Similarity and Congruence" contains all of the student information in SE 015 346 plus supplemental teacher materials. A summary of terminal objectives and teaching aids and equipment is given. With each section are listings of objectives, teaching aids, suggested approaches, and discussion questions. Related documents are SE 015 334 - SE 015 346. This work was prepared under an ESEA Title III contract. (LS)

1254 ED 069 535
Herman, Daniel L.
Similarity and Congruence.
Oakland County Schools, Pontiac, Mich.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—Mar 71
Grant—OEG-68-05635-0
Note—53p.; Revised Edition
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Classification, *Congruence, Curriculum, *Geometric Concepts, Instruction, *Instructional Materials, Low Ability Students, Mathematics Education, Objectives, Ratios (Mathematics), *Secondary School Mathematics, Units of Study, Worksheets
Identifiers—Elementary Secondary Education Act Title III

This instructional unit is an introduction to the common properties of similarity and congruence. Manipulation of objects leads to a recognition of these properties. The ASA, SAS, and SSS theorems are not mentioned. Limited use is made in the application of the properties of size and shape preserved by similarity or congruence. A teacher's guide is available. Related documents are SE 015 334 - SE 015 345 and SE 015 347. This work was prepared under an ESEA Title III contract. (LS)

1255 ED 069 534
Ptak, Diane M.
Geometric Excursions, Teacher's Guide.
Oakland County Schools, Pontiac, Mich.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—Aug 70
Grant—OEG-68-05635-0
Note—128p.; Revised Edition
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—Curriculum, *Geometric Concepts, Instruction, *Instructional Materials, Low Ability Students, *Manipulative Materials, Mathematics Education, Objectives, *Secondary School Mathematics, *Teaching Guides, Units of Study
Identifiers—Elementary Secondary Education Act Title III

This guide to accompany "Geometric Excursions" contains all of the student information in SE 015 344 plus additional teacher materials. With each section are listings of objectives, equipment and teaching aids, suggested approaches, and discussion questions. Masters are provided for making transparencies and student copies of patterns for three-dimensional solids. Related documents are SE 015 334 - SE 015 344, SE 015 346, and SE 015 347. This work was prepared under an ESEA Title III contract. (LS)

1256 ED 069 533
Ptak, Diane M.
Geometric Excursions.
Oakland County Schools, Pontiac, Mich.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—Aug 70
Grant—OEG-68-05635-0
Note—108p.; Revised Edition
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—Curriculum, *Geometric Concepts, Instruction, *Instructional Materials, Low Ability Students, *Manipulative Materials, Mathematics Education, Objectives, *Secondary School Mathematics, Units of Study, Worksheets
Identifiers—Elementary Secondary Education Act Title III

This geometric instructional unit concentrates on student use of three-dimensional manipulative aids. Rigorous definitions are avoided as students use categorical reasoning based on their own experiences. Through their own discovery of relationships, it is hoped students will become interested in geometry, aware of geometric forms in the world, and make better use of spatial perception. A teacher's guide is available. Related documents are SE 015 334 - SE 015 343 and SE 015 345 - SE 015 347. This work was prepared under an ESEA Title III contract. (LS)

1257 ED 069 532
Coburn, Terrence G.
Where is the Point? Teacher's Guide.
Oakland County Schools, Pontiac, Mich.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—Jan 70
Grant—OEG-68-05635-0
Note—211p.; Revised Edition
EDRS Price - MF01/PC09 Plus Postage.
Descriptors—Analytic Geometry, Curriculum, *Geometric Concepts, *Graphs, Instruction, *Instructional Materials, Low Ability Students, Mathematics Education, Objectives, *Secondary School Mathematics, *Teaching Guides, Units of Study
Identifiers—Elementary Secondary Education Act Title III

This guide accompanies "Where is the Point?"; it contains all of the student materials in SE 015 342 plus supplemental teacher materials. With each lesson there is a list of objectives and equipment and teaching aids, suggested approaches, discussion questions, and answers. Appendices include transparency masters and supplemental activities. Related documents are SE 015 334 - SE 015 342 and SE 015 344 - SE 015 347. This work was prepared under an ESEA Title III contract. (LS)

1258 ED 069 531
Coburn, Terrence G.
Where is the Point?
Oakland County Schools, Pontiac, Mich.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—Jan 70
Grant—OEG-68-05635-0
Note—91p.; Revised Edition
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—Analytic Geometry, Curriculum, *Geometric Concepts, *Graphs, Instruction, *Instructional Materials, Low Ability Students, Mathematics Education, Objectives, *Secondary School Mathematics, Units of Study, Worksheets
Identifiers—Elementary Secondary Education Act Title III

This instructional unit presents the coordinate system as a correspondence between a set of numbers and a set of points. A variety of coordinate systems are studied with major emphasis on the rectangular system. Basic problem solving and critical thinking skills are practiced in practical application situations. Related documents are SE 015 334 - SE 015 341 and SE 015 343 - SE 015 347. This work was prepared under an ESEA Title III contract. (LS)

1259 ED 069 530
Coburn, Terrence G. Cox, Philip L.
Angle Measure, Teacher's Guide.
Oakland County Schools, Pontiac, Mich.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—Sep 70
Grant—OEG-68-05635-0
Note—255p.; Revised Edition
EDRS Price - MF01/PC11 Plus Postage.
Descriptors—Curriculum, *Geometric Concepts, Instruction, *Instructional Materials, Low Ability Students, Manipulative Materials, Mathematics Education, *Measurement, Objectives, *Secondary School Mathematics, *Teaching Guides, Units of Study
Identifiers—Elementary Secondary Education Act Title III

This guide to accompany "Angle Measure" contains all of the student information in SE 015 340 plus supplemental teacher materials. A summary of terminal objectives and necessary equipment and teaching aids is given. Discussion topics, teaching suggestions, and answers appear with each section. Related documents are SE 015 334 - SE 015 340 and SE 015 342 - SE 015 347. This work was prepared under an ESEA Title III contract. (LS)

1260 ED 069 529
Coburn, Terrence G. Cox, Philip L.
Angle Measure.
Oakland County Schools, Pontiac, Mich.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—Sep 70
Grant—OEG-68-05635-0
Note—147p.; Revised Edition
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—Curriculum, *Geometric Concepts, Instruction, *Instructional Materials, Low Ability Students, Manipulative Materials, Mathematics Education, *Measurement, Objectives, *Secondary School Mathematics, Units of Study, Worksheets
Identifiers—Elementary Secondary Education Act Title III

This instructional unit seeks to prepare the student to exhibit competence in the mechanics of measuring and estimating angle size and in making generalizations on the nature of measurement. Experimentation with the use of circular and semicircular protractors is encouraged. Exercises and discussion questions are given for each section. Appendices are included which contain material for review, remediation, and enrichment. A teacher's guide is also available. Related documents are SE 015 334 - SE 015 339 and SE 015 341 - SE 015 347. This work was prepared under an ESEA Title III contract. (LS)

1262 ED 059 086
Josepher, Nelda And Others
Authorized Course of Instruction for the Quinmester Program, Mathematics: Geometry.
Dade County Public Schools, Miami, Fla.
Pub Date—71
Note—33p.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Curriculum, *Curriculum Guides, *Geometry, Instruction, Mathematics Education, Objectives, Plane Geometry, *Secondary School Mathematics, Student Evaluation, Textbooks
Identifiers—*Quinmester Program

Outlined are the minimum requirements for a quinmester course of introduction to high school geometry. After a description of the course content and overall goals, further details are presented in nine sections. Each section gives performance objectives, textbook references, content (including lists of vocabulary and associated properties), and suggested teaching strategies. The material covered includes angles, parallels, perpendiculars, congruent and similar triangles, inequalities and constructions. There is an emphasis on the use of simple visual aids in developing the initial concepts. The pamphlet closes with sample posttest items and a bibliography of selected textbooks and audiovisual materials. (MM)

1263 ED 053 926
Helwig, G. Alfred And Others
Analytic Geometry, A Tentative Guide.
Baltimore County Public Schools, Towson, Md.
Pub Date—67
Note—53p.
Available from—Baltimore County Public Schools, Office of Curriculum Development, Towson, Maryland 21204 ($2.00)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—*Analytic Geometry, Curriculum, *Curriculum Guides, Geometric Concepts, Instruction, Mathematics, *Secondary School Mathematics, *Teaching Guides

This teacher's guide for a semester course in analytic geometry is based on the text "Analytic Geometry" by W. K. Morrill. Included is a daily schedule of suggested topics and homework assignments. Specific teaching hints are also given. The content of the course includes point and plane vectors, straight lines, point and space vectors, planes, straight lines in space, circles, conics, transformation of axes, and polar coordinates. (Author/CT)

1264 ED 050 980
Klier, Katherine M., Ed.
Geometry, Senior High School Curriculum Guide.
Baltimore County Public Schools, Towson, Md.
Pub Date—63
Note—200p.
Available from—Baltimore County Public Schools, Office of Curriculum Development, Towson, Maryland 21204 ($5.00)
Document Not Available from EDRS.
Descriptors—*Curriculum, *Curriculum Guides, *Geometry, Logic, *Mathematics Education, *Secondary School Mathematics

This syllabus presents a fused course in plane, solid, and coordinate geometry for secondary school students. Elementary set theory, logic, and the principles of separation provide unifying threads throughout this approach to geometry. There are actually two curriculum guides included; one for each of two different texts–Henderson, Pingry, and Robinson's "Modern Geometry" and Jurgensen, Donnelly, and Dolciani's "Modern Geometry." This curriculum guide is one of several prepared for secondary school mathematics instruction by Baltimore County Public Schools. (JG)

1265 ED 050 059
Geometry. Mathematics Curriculum Guide.
Gary City Public School System, Ind.
Pub Date—68
Note—41p.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Curriculum Guides, *Geometry, *Mathematics, *Secondary Education, *Secondary School Mathematics

GRADES OR AGES: Secondary. SUBJECT MATTER: Geometry. ORGANIZATION AND PHYSICAL APPEARANCE: The subject content of the guide is arranged in four columns–major areas, significant outcomes, observations and suggestions, references and films. The guide is mimeographed and spiral bound with a soft cover. OBJECTIVES AND ACTIVITIES: General objectives are listed in the introductory material, with more specific objectives in the significant outcomes columns. Activities are not listed in detail. INSTRUCTIONAL MATERIALS: Texts, films, and filmstrips are listed for the major areas, and there is a brief bibliography. STUDENT ASSESSMENT: A multiple choice test, with answers, is included to provide a means of evaluation. (MBM)

1266 ED 046 716
Brydegaard, Marguerite Inskeep, James E., Jr.
Readings in Geometry from the Arithmetic Teacher.
National Council of Teachers of Mathematics, Inc., Washington, D.C.
Pub Date—70
Note—126p.
Available from—National Council of Teachers of Mathematics, 1201 16th St., N.W., Washington, D.C. 20036
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Curriculum, *Elementary School Mathematics, *Geometry, *Instruction, *Mathematical Enrichment, Mathematical Models, Mathematics, *Secondary School Mathematics, Teaching Guides

This is a book of readings from the "Arithmetic Teacher" on selected topics in geometry. The articles chosen are samples of material published in the journal from its beginning in February 1954 through February 1970. The articles are of three major types. The first is classified "involvement." These articles describe geometry units in which the students build geometrical models, play games, and draw geometrical objects. Another article in this classification focuses on a teacher preparation course in which the future teachers experience the learning activities of the students. The second group of articles is categorized "instruction-techniques." These articles focus on the techniques of teaching units in informal geometry using mirrors, models, toys, and Mobius bands. The third type of article is termed "instruction-rationale." This type of article gives reasons why geometry should be taught in the elementary grades and tells what parts of geometry should be taught. Included in the book is a bibliography of articles published in the "Arithmetic Teacher" pertinent to geometry. (Author/CT)

1267 ED 039 129
Walter, Marion I.
Boxes, Squares and Other Things. A Teacher's Guide for a Unit in Informal Geometry.
National Council of Teachers of Mathematics, Inc., Washington, D.C.
Pub Date—70
Note—98p.
Available from—National Council of Teachers of Mathematics, Inc., 1201 16th St., N.W., Washington, D.C. 20036 ($3.50)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Bibliographies, *Elementary School Mathematics, *Geometry, *Instruction, *Mathematics, Pattern Recognition, *Teaching Guides
Identifiers—National Council of Teachers of Mathematics

This unit describes an experience in informal geometry that is based on work with construction paper and milk cartons. The description is mostly of work actually carried out by children in the elementary grades involving such mathematical concepts as congruence, symmetry, the idea of a geometric transformation, and some basic notions of elementary group theory. The purposes of the unit are (1) to give students experience in visualizing two and three dimensional objects, and (2) to give students opportunity to learn to raise questions, pose problems, and learn to solve them. (RP)

1268 ED 033 847
Friedman, Bernard
[Geometry Through Symmetry, Cambridge Conference on School Mathematics Feasibility Study No. 32.]
Cambridge Conference on School Mathematics, Newton, Mass.
Pub Date—[69]
Note—58p.
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Elementary School Mathematics, *Geometric Concepts, *Geometry, Grade 8, *Instruction, *Instructional Materials, *Mathematics, Resource Materials, Secondary School Mathematics
Identifiers—Cambridge Conference on School Mathematics MA

These materials were written for the use of a class of eighth grade high ability students in a four week course sponsored by Educational Services Incorporated on the Stanford campus. They represent a practical response to the proposal by the Cambridge Conference of 1963 that geometry be taught by vector space methods. Instead of using vector methods, these materials represent an attempt to obtain the geometrical properties of figures from proofs and arguments about their symmetry properties. These notes contain instructional materials on such mathematical concepts as reflection in the plane, perpendicularity, central symmetry, translation of the plane, and rotation. In addition, these notes contain definitions, exercises, and summaries of results obtained in class. [Not available in hardcopy due to marginal legibility of original document.] (RP)

1269 ED 033 034
Walter, Marion
Informal Geometry for Young Children; Cambridge Conference on School Mathematics; Feasibility Study No. 34b.
Cambridge Conference on School Mathematics, Newton, Mass.
Pub Date—[69]
Note—37p.
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Elementary School Mathematics, *Geometric Concepts, *Geometry, Grade 1, Grade 6, *Instruction, *Instructional Materials, Mathematical Concepts, Resource Materials

These materials were written with the aim of reflecting the thinking of The Cambridge Conference on School Mathematics (CCSM) regarding the goals and objectives for school mathematics. These materials are intended to provide children with a variety of informal activities in intuitive geometry in the elementary school. Opportunities are provided for children to gain experience with many types of rigid motions - namely translations, rotations, and reflections. The type of work described in this report gave students the opportunity to become familiar, by direct experience and experiment, with important geometrical concepts before they were to be studied theoretically. Included are descriptions of a number of activities. Comments by teachers concerning the effectiveness of various activities and procedures are also included. This document is the best available copy. [Not available in hard copy due to marginal legibility of original document]. (RP)

1270 ED 033 033
An Experimental Text in Transformational Geometry, Student Text; Cambridge Conference on School Mathematics Feasibility Study No. 43a.
Cambridge Conference on School Mathematics, Newton, Mass.
Pub Date—[69]
Note—89p.
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Geometric Concepts, *Geometry, *Instructional Materials, Mathematical Concepts, Mathematics, *Secondary School Mathematics, *Textbooks

This is part of a student text which was written with the aim of reflecting the thinking of The Cambridge Conference on School Mathematics (CCSM) regarding the goals and objectives for mathematics. The instructional materials were developed for teaching geometry in the secondary schools. This document is chapter six and titled Motions and Transformations. Presented is the concept of rigid motion in the plane. Various kinds of rigid motions are considered, certain mathematical ideas about rigid motions are obtained, and a number of applications are described. One of the chief mathematical ideas presented is that every rigid motion can be viewed either as a translation, a rotation, a reflection, or a combination of reflection and translation. This idea and others lead to a variety of useful applications in geometry. Several of these applications involving rigid motions are used to solve geometrical problems. Both explanatory materials and student problems are included. [Not available in hard copy due to marginal legibility of original document]. (RP)

1271 ED 033 030
Provisional Approaches to Goals for School Mathematics; Cambridge Conference on School Mathematics Feasibility Study No. 37.
Cambridge Conference on School Mathematics, Newton, Mass.
Pub Date—[69]
Note—172p.
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Calculus, *Curriculum Development, *Elementary School Mathematics, *Geometry, Graphs, Mathematical Applications, Measurement, Probability, Secondary School Mathematics

These materials were written with the aim of reflecting the thinking of Cambridge Conference on School Mathematics (CCSM) regarding the goals and objectives for school mathematics K-6. In view of the experiences of other curriculum groups and of the general discussions since 1963, the present report initiates the next step in evolving the "Goals". Three areas considered in this report are geometry, functions in preparation for calculus, and applications. Two working papers are presented on applications - probability and mechanics and slopes. One working paper on circular functions is included. Fifteen working papers are presented involving geometry and geometrical concepts. The papers on geometry include examination and description of common objectives; playing with figures, blocks, and tessellations; constructions; graphs and polygons; tessellations; dissection of figures; order; measurement; similarity and map making; symmetry, congruence, and rigid motion; transformation groups; rotations and matrices; iterated reflections in mirrors; knots; and spheres, cylinders, and torus. [Not available in hard copy due to marginal legibility of original document]. (RP)

1272 ED 033 029
Stolzenberg, Gabriel
Geometry Report; Cambridge Conference on School Mathematics Feasibility Study No. 39.
Cambridge Conference on School Mathematics, Newton, Mass.
Pub Date—[69]
Note—52p.

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Arithmetic, *Elementary School Mathematics, *Geometric Concepts, Grade 7, *Instruction, *Number Concepts, *Secondary School Mathematics
Identifiers—Cambridge Conference on School Mathematics MA, Massachusetts

These materials were written with the aim of reflecting the thinking of the Cambridge Conference on School Mathematics (CCSM) regarding the goals and objectives for school mathematics. This report deals with some seventh grade mathematical concepts taught at Cambridge Friends' School. The discovery approach was utilized by the teacher in order to involve students in the classroom discussions. The problematic areas which are dealt with in this report focus on (1) geometry as physics versus geometry as mathematics, (2) proofs and mathematical reasoning, (3) area, and (4) infinite process (approximations). Instructional procedures are described and student reactions to various procedures and activities are listed. [Not available in hard copy due to marginal legibility of original document]. (RP)

1273 ED 033 028
McLane, Lyn
Symmetry Motion Classes; Cambridge Conference on School Mathematics Feasibility Study No. 40.
Cambridge Conference on School Mathematics, Newton, Mass.
Pub Date—[69]
Note—28p.
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Arithmetic, Curriculum Development, *Elementary School Mathematics, *Geometric Concepts, Instruction, *Instructional Materials, *Symmetry

These materials were written with the aim of reflecting the thinking of The Cambridge Conference on School Mathematics (CCSM) regarding the goals and objectives for school mathematics. This document details the planning and response for each of ten lessons involving symmetry motions. The problems focused on (1) combining motions in a given order, and (2) finding the axis of symmetry for the triangle, rectangle, square, and octagon. Comments on the symmetry motion sessions follow at the end of the notes. [Not available in hard copy due to marginal legibility of original document]. (RP)

1274 ED 033 023
An Experimental Text in Transformational Geometry; Teachers' Guide; Cambridge Conference on School Mathematics Feasibility Study No. 43b.
Cambridge Conference on School Mathematics, Newton, Mass.
Pub Date—[69]
Note—64p.
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Elementary School Mathematics, Geometric Concepts, *Geometry, *Instructional Materials, *Mathematics, Secondary School Mathematics, *Teaching Guides
Identifiers—Cambridge Conference on School Mathematics MA

This teachers' guide was written to be used in conjunction with the student text, An Experimental Text in Transformational Geometry. The guide is intended to help teachers who have responsibility for teaching the topics Motions and Transformations in the Plane. Each section commences with a general discussion concerning the major ideas which are to be developed and understood by the students. In addition, situations and statements which could be difficult for students are identified. Finally, answers to questions and problems presented in the students' text are provided. [Not available in hard copy due to marginal legibility of original document]. (RP)

1275 ED 021 731
Foley, Jack L.
Similarity.
Pub Date—May 67
Note—53p.
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Curriculum, Curriculum Development, *Elementary School Mathematics, *Geometry, Instructional Materials, Low Ability Students, Mathematics, *Secondary School Mathematics
Identifiers—Elementary and Secondary Education Act Title III.

This booklet, one of a series, has been developed for this project, A Porgram for Mathematically Underdeveloped Pupils. A project team, including inservice teachers, is being used to write and develop the materials for this program. The materials developed in this booklet are based on activities involving (1) similar geometric figures, (2) similar triangles, (3) classification of triangles, (4) constructing triangles and similar triangles, and (5) finding the missing length of similar polygons. (RP)

1276 ED 020 895
FOLEY, JACK L.
ANGLES, MEASURES.
Pub Date—AUG67
Note—35P.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Arithmetic, *Elementary School Mathematics, Extracurricular Activities, *Instructional Materials, Low Ability Students, *Mathematics, Trigonometry
Identifiers—Elementary Secondary Education Act Title III

THIS BOOKLET, ONE OF A SERIES, HAS BEEN DEVELOPED FOR THE PROJECT, A PROGRAM FOR MATHEMATICALLY UNDERDEVELOPED PUPILS. A PROJECT TEAM, INCLUDING INSERVICE TEACHERS, IS BEING USED TO WRITE AND DEVELOP THE MATERIALS FOR THIS PROGRAM. THE MATERIALS DEVELOPED IN THIS BOOKLET INCLUDE (1) ANGLE MEASUREMENT, (2) ANGLES AND TRIANGLES, (3) KINDS OF ANGLES, (4) MEASURING THE INTERIOR AND EXTERIOR ANGLES OF POLYGONS, (5) INSCRIBED ANGLES, AND (6) LINES AND ANGLES. ACCOMPANYING THESE BOOKLETS WILL BE A "TEACHING STRATEGY BOOKLET" WHICH WILL INCLUDE A DESCRIPTION OF TEACHER TECHNIQUES, METHODS, SUGGESTED SEQUENCES, ACADEMIC GAMES, AND SUGGESTED VISUAL MATERIALS. (RP)

1277 ED 020 894
FOLEY, JACK L.
CURVES, VERTICES, KNOTS AND SUCH.
Pub Date—AUG67
Note—65P.
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—*Arithmetic, *Elementary School Mathematics, Extracurricular Activities, *Instructional Materials, Low Ability Students, *Mathematics, Topology
Identifiers—Elementary Secondary Education Act Title III

THIS BOOKLET, ONE OF A SERIES, HAS BEEN DEVELOPED FOR THE PROJECT, A PROGRAM FOR MATHEMATICALLY UNDERDEVELOPED PUPILS. A PROJECT TEAM, INCLUDING INSERVICE TEACHERS, IS BEING USED TO WRITE AND DEVELOP THE MATERIALS FOR THIS PROGRAM. THE MATERIALS DEVELOPED IN THIS BOOKLET INCLUDE SUCH CONCEPTS AS (1) SIMPLE CLOSED CURVES, (2) NETWORKS, (3) MAP COLORING, (4) TOPOLOGICAL TRANSFORMATIONS, (5) THREE DIMENSIONAL TOPOLOGY, AND (6) KNOTS. ACCOMPANYING THESE BOOKLETS WILL BE A "TEACHING STRATEGY BOOKLET" WHICH WILL INCLUDE A DESCRIPTION OF TEACHER TECHNIQUES, METHODS, SUGGESTED SEQUENCES, ACADEMIC GAMES, AND SUGGESTED VISUAL MATERIALS. (RP)

1278 ED 020 888
FOLEY, JACK L.
THE MATH GO-ROUND, A UNIT OF MATHASBORG.
Pub Date—NOV67
Note—29P.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Arithmetic, Division, *Elementary School Mathematics, Extracurricular Activities, Geometry, *Instructional Materials, Low Ability Students, *Mathematics, Multiplication
Identifiers—Elementary Secondary Education Act Title III

THIS BOOKLET, ONE OF A SERIES, HAS BEEN DEVELOPED FOR THE PROJECT, A PROGRAM FOR MATHEMATICALLY UNDERDEVELOPED PUPILS. A PROJECT TEAM, INCLUDING TEACHERS, IS BEING USED TO WRITE AND DEVELOP THE MATERIALS FOR THIS PROGRAM. THE MATERIALS DEVELOPED IN THIS BOOKLET INCLUDE (1) NUMERALS AND GEOMETRICAL PATTERNS, (2) ACTIVITIES FOR DISCOVERING PATTERNS IN MULTIPLICATION AND DIVISION, (3) TESTS FOR DIVISIBILITY, AND (4) ACTIVITIES INVOLVING PRIME AND COMPOSITE NUMBERS. ACCOMPANYING THESE BOOKLETS WILL BE A "TEACHING STRATEGY BOOKLET" WHICH WILL INCLUDE A DESCRIPTION OF TEACHER TECHNIQUES, METHODS, SUGGESTED SEQUENCES, ACADEMIC GAMES, AND SUGGESTED VISUAL MATERIALS. (RP)

1279 ED 020 887
FOLEY, JACK L.
MANEUVERS ON A GEO-BOARD.
Pub Date—NOV67
Note—23P.
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—*Arithmetic, *Elementary School Mathematics, Extracurricular Activities, Geometry, *Instructional Materials, Low Ability Students, *Mathematics, Trigonometry
Identifiers—Elementary Secondary Education Act Title III

THIS BOOKLET, ONE OF A SERIES, HAS BEEN DEVELOPED FOR THE PROJECT, A PROGRAM FOR MATHEMATICALLY UNDERDEVELOPED PUPILS. A PROJECT TEAM, INCLUDING INSERVICE TEACHERS, IS BEING USED TO WRITE AND DEVELOP THE MATERIALS FOR THIS PROGRAM. THE MATERIALS DEVELOPED IN THIS BOOKLET INCLUDE ACTIVITIES ON (1) CONSTRUCTION OF SQUARES, RECTANGLES, TRIANGLES, AND PARALLELOGRAMS HAVING A GIVEN INDICATED AREA, (2) DISCOVERING RELATIONSHIPS BETWEEN PERIMETER, LENGTH, WIDTH, AND AREA OF GEOMETRICAL CONSTRUCTIONS, AND (3) CONSTRUCTING NETWORKS. ACCOMPANYING THESE BOOKLETS WILL BE A "TEACHING STRATEGY BOOKLET" WHICH WILL INCLUDE A DESCRIPTION OF TEACHER TECHNIQUES, METHODS, SUGGESTED SEQUENCES, ACADEMIC GAMES, AND SUGGESTED VISUAL MATERIALS. (RP)

1280 ED 013 517
NINTH GRADE PLANE AND SOLID GEOMETRY FOR THE ACADEMICALLY TALENTED, TEACHERS GUIDE.
Cleveland Public Schools, Ohio.; Ohio State Dept. of Education, Columbus.
Pub Date—63
Note—262P.
EDRS Price - MF01/PC11 Plus Postage.
Descriptors—*Curriculum Guides, *Gifted, Grade 9, *Plane Geometry, *Solid Geometry, Special Education, Units of Study
Identifiers—COLUMBUS

A UNIFIED TWO-SEMESTER COURSE IN PLANE AND SOLID GEOMETRY FOR THE GIFTED IS PRESENTED IN 15 UNITS, EACH SPECIFYING THE NUMBER OF INSTRUCTIONAL SESSIONS REQUIRED. UNITS ARE SUBDIVIDED BY THE TOPIC AND ITS CONCEPTS, VOCABULARY, SYMBOLISM, REFERENCES (TO SEVEN TEXTBOOKS LISTED IN THE GUIDE), AND SUGGESTIONS. THE APPENDIX CONTAINS A FALLACIOUS PROOF, A TABLE COMPARING EUCLIDEAN AND NON-EUCLIDEAN GEOMETRY, PROJECTS FOR INDIVIDUAL ENRICHMENT, A GLOSSARY, AND A 64-ITEM BIBLIOGRAPHY. RESULTS OF THE STANDARDIZED TESTS SHOWED THAT THE ACCELERATES SCORED AS WELL OR BETTER IN ALMOST ALL CASES THAN THE REGULAR CLASS PUPILS, EVEN THOUGH THE ACCELERATES WERE YOUNGER. SUBJECTIVE EVALUATION OF ADMINISTRATION, COUNSELORS, TEACHERS, AND PUPILS SHOWED THE PROGRAM WAS HIGHLY SUCCESSFUL. (RM)

1281 ED 010 393
DEROLF, JOHN J. MIENTKA, WALTER E.
AN ADVANCED PLACEMENT COURSE IN ANALYTIC GEOMETRY AND CALCULUS (MATHEMATICS XV X AP).
Nebraska Univ., Lincoln.
Report No.—BR-5-0386-B; CRP-2010-B
Pub Date—64
Note—132P.
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—*Advanced Placement, Advanced Students, *Analytic Geometry, *Calculus, *Correspondence Study, Curriculum Guides, High School Students, Lesson Plans, Student Placement, Study Guides, *Textbooks
Identifiers—NEBRASKA

THIS TEXT ON ANALYTIC GEOMETRY AND CALCULUS IS A CORRESPONDENCE COURSE DESIGNED FOR ADVANCED PLACEMENT OF HIGH SCHOOL STUDENTS IN COLLEGE. EACH OF THE 21 LESSONS INCLUDES READING ASSIGNMENTS AND LISTS OF PROBLEMS TO BE WORKED. IN ADDITION, SUPPLEMENTARY EXPLANATIONS AND COMMENTS ARE INCLUDED THAT (1) PROVIDE ILLUSTRATIVE EXAMPLES OF CONCEPTS AND TECHNIQUES DISCUSSED IN THE TEXT, (2) CLARIFY IMPORTANT DEFINITIONS AND PROOFS GIVEN IN THE TEXT, AND (3) BROADEN THE SCOPE OF THE COURSE BY INTRODUCING IMPORTANT CONCEPTS NOT DETAILED BY THE TEXT. ANOTHER REPORT ON THIS PROJECT IS ED 010 392. (GC)

1282 ED 069 506
Holland, Bill
Learning Activity Package, Geometry.
Ninety Six High School, S. C.
Pub Date—72
Note—58p.
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Curriculum, *Geometry, *Individualized Instruction, *Instructional Materials, Mathematics Education, Objectives, *Secondary School Mathematics, Teacher Developed Materials, Teaching Guides, Units of Study

A set of three teacher-prepared Learning Activity Packages (LAPs) in geometry, the units cover the topics of distance, lines, planes, separation; angles and triangles; and congruences. The units each include a rationale for the material, a list of behavioral objectives, a list of resources including texts (with reading assignments and problem sets specified) and tape recordings, a student self-evaluation sheet, suggestions for advanced study, and references. For other documents in this series, see SE 015 193, SE 015 194, SE 015 195, and SE 015 196. (DT)

GRAPHING AND FUNCTIONS

1300 ED 183 412
Dawson, Evelyn And Others
Travel. Topical Module for Use in a Mathematics Laboratory Setting.
Regional Center for Pre-Coll. Mathematics, Denver, Colo.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—73
Grant—NSF-GW-7720
Note—111p.; For related documents, see SE 030 304-322
Pub Type— Guides - Classroom - Learner (051) — Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—Activities, *Graphs, *Learning Laboratories, *Map Skills, Mathematical Applications, Mathematics Curriculum, *Mathematics Instruction, Secondary Education, *Secondary School Mathematics, *Travel, Worksheets

This module is primarily designed to focus on two main areas: graphing and map reading. Graphing entails the use of bar, line, and circle graphs, the x and y axes, the coordinate plane, and ordered pairs. Map reading includes conversion tables, approximations, devising scales, and learning to refold a folding map. (Author/MK)

1301 ED 173 152
Allen, Frank B. And Others
Mathematics for High School, Elementary Functions (Part 2). Commentary For Teachers. Preliminary Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—60
Note—177p.; For related documents, see SE 028 246 and ED 135 630; Contains occasional light and broken type
Pub Type— Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC08 Plus Postage.
Descriptors—*Algebra, Curriculum, *Curriculum Guides, *Instruction, Mathematics Education, Secondary Education, *Secondary School Mathematics, *Trigonometry
Identifiers—*Functions (Mathematics), *School Mathematics Study Group

This is part two of a two-part manual for teachers using SMSG high school text materials. Each chapter contains a commentary on the text, answers to the exercises, and a set of illustrative test questions. Chapter topics include exponential and logarithmic functions and circular functions. (MP)

1302 ED 173 151
Allen, Frank B. And Others
Mathematics for High School, Elementary Functions (Part 1). Commentary for Teachers. Preliminary Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—59
Note—178p.; For related documents, see SE 028 247 and ED 135 630
Pub Type— Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC08 Plus Postage.
Descriptors—*Algebra, Curriculum, *Curriculum Guides, *Instruction, Mathematics Education, Secondary Education, *Secondary School Mathematics, *Set Theory
Identifiers—*Functions (Mathematics), *School Mathematics Study Group

This is part one of a two-part manual for teachers using SMSG high school text materials. Each chapter contains a commentary on the text, answers to exercises, and a set of illustrative test questions. Chapter topics include sets, relations and functions, polynomial functions, and algebra of polynomial functions. (MP)

1303 ED 168 872
Holden, Herbert L.
Classroom Aids for Mathematics, Volume 1: Polynomials.
Eastern Washington State Coll., Cheney.
Pub Date—[78]
Note—23p.
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—*College Mathematics, *Graphs, Higher Education, *Instruction, *Instructional Materials, Mathematics, *Problem Sets, *Transparencies
Identifiers—*Polynomials

The goal of this pamphlet is to provide instructors of various scientific disciplines with mathematically accurate graphs of elementary polynomial functions. The figures in this pamphlet are intended to provide suitable material for the preparation of classroom handouts and overhead transparencies. In addition, sample sets of exercises are provided for each figure. Grid lines are provided on all graphs for convenience in working with problems related to translation of axes. Each graph has the same scaling on the X and Y axes to make it easier to interpret the slope of any curve. (MP)

1304 ED 143 541
Bolduc, Elroy J., Jr. And Others
Mathematics Through Science, Part III: An Experimental Approach to Functions. Teacher's Commentary. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—64
Note—169p.; For related documents, see SE 023 015-019; Not available in hard copy due to marginal legibility of original document
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Algebra, Grade 9, *Mathematical Applications, *Physical Sciences, Secondary Education, *Secondary School Mathematics, *Teaching Guides
Identifiers—*School Mathematics Study Group

The purpose of this project is to teach learning and understanding of mathematics at the ninth grade level through the use of science experiments. This part of the program contains significant amounts of material normally found in a beginning algebra class. The material should be found useful for classes in general mathematics as a preparation for enrollment in algebra the following term. In particular, the loaded beam experiment introduces negative numbers, opposites, absolute values and addition of signed numbers. The number generator experiment yields ordered pairs; when graphed, the equation of a line and its slope are determined. The falling sphere experiment gives the same kind of data but also requires the fitting of a "best" straight line. The quadratic function is approached through three experiments: the wick, horizontal metronome, and oscillating spring. Finally, the idea of tangents and slope of a curve are developed through the inclined plane, the lens, and floating magnet - with need found for translation of axes. Included in the Teacher's Commentary are background information, discussion of activities and exercises, and answers to problems. (RH)

1305 ED 143 540
Bolduc, Elroy J., Jr. And Others
Mathematics Through Science, Part III: An Experimental Approach to Functions. Student Text. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—64
Note—169p.; For related documents, see SE 023 015-020; Contains occasional light and broken type
Pub Type— Books (010)
EDRS Price - MF01/PC07 Plus Postage.
Descriptors—*Algebra, Grade 9, *Instructional Materials, Mathematical Applications, *Physical Sciences, Secondary Education, *Secondary School Mathematics, *Textbooks
Identifiers—*School Mathematics Study Group

The purpose of this text is to teach learning and understanding of mathematics at the ninth grade level through the use of science experiments. This text contains significant amounts of material normally found in a beginning algebra class. The material should be found useful for classes in general mathematics as a preparation for enrollment in algebra the following term. Chapters in the text include: (1) An Experimental Approach to the Real Numbers; (2) An Experimental Approach to Linear Functions; (3) The Falling Sphere; (4) An Experimental Approach to Nonlinear Functions; and (5) Analysis of Nonlinear Functions. (RH)

1306 ED 143 539
Bolduc, Elroy J., Jr. And Others
Mathematics Through Science, Part II: Graphing, Equations and Linear Functions. Teacher's Commentary. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—64
Note—112p.; For related documents, see SE 023 015-020; Contains occasional light and broken type
Pub Type— Guides - General (050)
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—*Algebra, Junior High School Students, *Mathematical Applications, *Physical Sciences, Secondary Education, *Secondary School Mathematics, *Teaching Guides
Identifiers—*School Mathematics Study Group

The purpose of this project is to teach learning and understanding of mathematics at grades seven through nine through the use of science experiments. Previous knowledge of science on the part of students or teachers is not necessary. Lists of needed equipment are found at the beginning of this volume. It is strongly recommended that teachers try each experiment before it is done in class. The material in this part of the program can be covered in four weeks. The material in this book is used to develop the concepts of negative numbers, the basic properties of the real number system, linear functions, and quadratic functions. Included in the Teacher's Commentary are background information, discussion of activities and exercises, and answers to problems. (RH)

1307 ED 143 538
Bolduc, Elroy J., Jr. And Others
Mathematics Through Science, Part II: Graphing, Equations and Linear Functions. Student Text. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—64
Note—127p.; For related documents, see SE 023 015-020; Contains occasional light and broken type
Pub Type— Books (010)
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—*Algebra, *Instructional Materials, Junior High School Students, *Mathematical Applications, *Physical Sciences, Secondary Education, *Secondary School Mathematics, Textbooks
Identifiers—*School Mathematics Study Group

The purpose of this text is to teach learning and understanding of mathematics at grades seven through nine through the use of science experiments. Previous knowledge of science on the part of students or teachers is not necessary. The text is designed to be usable with any mathematics textbook in common use. The material can be covered in four weeks. Chapters in the text include: (1) Open Sentences and Equations; (2) An Experimental Approach to Linear Functions; and (3) Trampolines and Gases. The appendices contain sections on graphing, scientific notation, and the metric system. A glossary is also included. (RH)

1308 ED 135 630
Allen, Frank B. And Others
Elementary Functions, Teacher's Commentary, Unit 22. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—65
Note—294p.; For related documents, see SE 021 987-022 002 and ED 130 870-877; Contains occasional light and broken type
Pub Type— Guides - General (050)
EDRS Price - MF01/PC12 Plus Postage.
Descriptors—*Curriculum, Elementary Secondary Education, *Instruction, Mathematics Education, *Secondary School Mathematics, *Teaching Guides
Identifiers—*Functions (Mathematics), *School Mathematics Study Group

This twenty-second unit in the SMSG secondary school mathematics series is the teacher's commentary for Unit 21. For each of the chapters in Unit 21, a time allotment is suggested, the goals for that chapter are discussed, the mathematics is explained, some teaching suggestions are given, answers to exercises are provided, and sample test questions are included. In the appendices, mathematical induction is briefly discussed, then solutions to problems given in the appendices of Unit 21 are provided. (DT)

1309 ED 135 629
Allen, Frank B. And Others
Elementary Functions, Student's Text, Unit 21.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—61
Note—398p.; For related documents, see SE 021 987-022 002 and ED 130 870-877; Contains occasional light type
Pub Type— Books (010)
EDRS Price - MF01/PC16 Plus Postage.
Descriptors—*Curriculum, Elementary Secondary Education, Instruction, *Instructional Materials, Mathematics Education, *Secondary School Mathematics, *Textbooks
Identifiers—*Functions (Mathematics), *School Mathematics Study Group

Unit 21 in the SMSG secondary school mathematics series is a student text covering the following topics in elementary functions: functions, polynomial functions, tangents to graphs of polynomial functions, exponential and logarithmic functions, and circular functions. Appendices discuss set notation, mathematical induction, significance of polynomials, area under a polynomial graph, slopes of area functions, the law of growth, approximation and computation of e raised to the x power, an approximation for ln x, measurement of triangles, trigonometric identities and equations, and calculation of sin x and cos x. (DT)

1310 ED 127 187
Vogt, Elaine E., Ed.
Comparing Changes: MINNEMAST Coordinated Mathematics - Science Series, Unit 19.
Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—71
Note—172p.; For related documents, see SE021201-234
Available from—MINNEMAST, Minnemath Center, 720 Washington Ave., S.E., Minneapolis, MN 55414
Pub Type— Guides - General (050)
EDRS Price - MF01/PC07 Plus Postage.
Descriptors—*Curriculum Guides, Elementary Education, *Elementary School Mathematics, *Elementary School Science, Experimental Curriculum, Graphs, *Interdisciplinary Approach, Learning Activities, Mathematics Education, Primary Education, *Process Education, Science Education, Units of Study
Identifiers—*MINNEMAST, *Minnesota Mathematics and Science Teaching Project

This volume is the nineteenth in a series of 29 coordinated MINNEMAST units in mathematics and science for kindergarten and the primary grades. Intended for use by second-grade teachers, this unit guide provides a summary and overview of the unit, a list of materials needed, and descriptions of five groups of activities. The purposes and procedures for each activity are discussed. Examples of questions and discussion topics are given, and in several cases ditto masters, stories for reading aloud, and other instructional materials are included in the book. The focus of this unit is on experimental activities related to the prediction and observation of change. One section is related to the growth of plants, a second to duration of time and clock reading, and a third to other functional relationships. The construction of graphs by plotting ordered pairs is introduced. The final section of the unit concerns the measurement of volume and weight. Also included is a bibliography listing related books and films. (SD)

1311 ED 123 072
Cosler, Norma, Ed.
Individualized Math Problems in Graphs and Tables. Oregon Vo-Tech Mathematics Problem Sets.
Oregon Math Education Council, Salem.; Oregon State Dept. of Education, Salem. Career and Vocational Education Section.
Pub Date—74
Note—49p.; For related documents, see SE 020 628-648; Occasional Marginal Legibility
Available from—Continuing Education Publications, P.O. Box 1491, Portland, Oregon 97207
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Graphs, Individualized Instruction, *Instructional Materials, Mathematical Applications, Mathematics Education, *Problem Sets, Secondary Education, *Secondary School Mathematics, Tables (Data), *Vocational Education
Identifiers—*Oregon Vo Tech Math Project

This is one of eighteen sets of individualized mathematics problems developed by the Oregon Vo-Tech Math Project. Each of these problem packages is organized around a mathematical topic and contains problems related to diverse vocations. Solutions are provided for all problems. Problems involving the construction and interpretation of graphs and tables are presented in this volume. These problems are drawn from five vocational areas: forestry, marketing, clerical work, diesel mechanics, and food processing. (SD)

LOW ACHIEVERS

1400 ED 183 390

Finkelstein, Harry

Math for Survival.

Pub Date—[80]

Note—66p.

Pub Type— Guides - Classroom - Learner (051) — Numerical/Quantitative Data (110)

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—Addition, Division, Fractions, *Learning Disabilities, Mathematics Curriculum, *Mathematics Instruction, Multiplication, Number Concepts, Problem Sets, Secondary Education, *Secondary School Mathematics, *Slow Learners, Subtraction, *Textbooks, Whole Numbers

This mathematics textbook, developed for use with slow learners and learning disabled students in secondary school, contains 17 chapters. Among the topics covered are: number words; place value; rounding whole numbers; addition, subtraction, multiplication, and division of whole numbers; reducing fractions; mixed numbers; lowest common denominator; comparing fractions; and addition, multiplication, and division of fractions and mixed numbers. Each chapter begins with the statement of an "aim" and a "method." (MK)

1401 ED 182 108

Activity Oriented Materials Developed to Help the Low Achiever Attain Basic Mathematical Competencies.

Nebraska Univ., Lincoln.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—71

Grant—NSF-GW-7296

Note—241p.; For related document, see SE 029 386; Not available in hard copy due to marginal legibility of original document; Pages 178-180 missing from document prior to its being shipped to EDRS for filming; Best copy available

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—*Activity Units, Curriculum Development, Learning Activities, *Low Achievement, Mathematical Concepts, Mathematics Curriculum, *Mathematics Materials, Mathematics Teachers, Remedial Mathematics, Resource Materials, *Resource Units, Secondary Education, *Secondary School Mathematics, Skills, Teacher Developed Materials, Units of Study

Mathematics units developed during a summer workshop are presented. The purposes of the workshop were to prepare qualified secondary teachers to teach mathematics to low achievers and to collect, review, and develop new methodologies and materials for teaching the reluctant learner in mathematics. The units developed were designed to be used as supplementary materials and it was indicated that individual teachers should feel free to adapt the units to fit local needs. The units were designed to help students achieve needed competencies that were suggested by a committee of the National Council of Teachers of Mathematics. Each unit includes a competency statement, instructional objectives, and two suggested activities. Twenty-seven competencies are listed. The number of instructional objectives for each competency varies from one to fourteen. Some of the suggested competencies are: (1) ability to perceive patterns displayed by means of sequences of specific instances; (2) use the standard algorithms for the operations of arithmetic of whole rational numbers; and (3) construct bisectors of lines and angles. (MK)

1402 ED 161 509

Spangler, Richard

Mathematics: K-14. A Learning Center Approach at Tacoma Community College.

Pub Date—14 Oct 78

Note—27p.

Pub Type— Speeches/Meeting Papers (150)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—College Mathematics, Community Colleges, *Individualized Instruction, *Learning Laboratories, Learning Resources Centers, *Mathematics Instruction, Mathematics Materials, Mathematics Teachers, Open Education, Program Descriptions, Programed Instruction, Remedial Mathematics, *Tutorial Programs, *Two Year Colleges

The mathematics learning center at Tacoma Community College (Washington) has three programs: an independent-tutorial study system, a student tutorial system, and a basic arithmetic skills laboratory. Thirty independent-tutorial study mathematics courses, ranging from arithmetic to calculus, are available within the structure and control of the mathematics department. During the quarter, the student proceeds at his or her own rate of study using a commercially available active-involvement text. A student either completes the course by the end of the quarter or earns an incomplete grade which must be made up during the next quarter. The mathematics lab personnel consist of a faculty director assigned for three hours daily, instructors who diagnose exams and prescribe remedies for weaknesses, teaching assistants from universities, and clerks who administer and correct exams and keep all student records. The student tutorial service coordinates tutors and tutees without charge. The basic skills lab provides service to adults whose skill level in reading and arithmetic is below fifth grade. Results over seven years are seen in a reduced lecture class dropout rate, and in the doubling of the math student population without any increase in personnel. Advantages and disadvantages of the program are discussed and an appendix, containing a list of texts used, a floor plan of the lab, instructions for the independent learning modules, and sample student reminder cards, is included. (MB)

1403 ED 146 011

Mathematics Modified General Program, Grades Seven, Eight, Nine. Curriculum Bulletin Number 113.

Cincinnati Public Schools, Ohio.

Pub Date—62

Note—211p.; Not available in hard copy due to copyright restrictions; Contains occasional light and broken type

Available from—Clerk Treasurer, Cincinnati Public Schools, 230 East 9th St., Cincinnati, Ohio 45202 ($4.50)

Pub Type— Guides - General (050)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Basic Skills, *Curriculum Guides, *Instructional Materials, Junior High Schools, Learning Disabilities, Low Achievement, Mathematics Education, Secondary Education, *Secondary School Mathematics, *Study Guides, *Worksheets

This curriculum bulletin contains materials for students in grades 7, 8, and 9 who have learning difficulties. The first chapter discusses characteristics and needs of these students. Teaching procedures are briefly discussed in the second chapter. A suggested outline of content is followed by worksheets or study guides for approximately 35 topics at each grade level. These are designed to be used at the end of the instructional period to determine whether a concept has been taught successfully. Several resource units and games are also included. (MS)

1404 ED 058 681

Vennard, Bruce Penniman, Terry L.

Quality Math Experiences.

Iowa Univ., Iowa City. Special Education Curriculum Development Center.

Spons Agency—Iowa State Dept. of Public Instruction, Des Moines.

Pub Date—Jan 72

Note—88p.

EDRS Price - MF01/PC04 Plus Postage.

Descriptors—*Exceptional Child Education, *Guidelines, *Mathematics, Measurement, *Mental Retardation, Money Management, *Teaching Methods, Time

Presented are teaching methods for the instruction of mathematics to mentally retarded children. Although the ideas are developed from simple to complex, there is no attempt to correlate mathematical ideas with grade levels. The general stated philosophy is that the retarded child learns best by experiencing and finds satisfaction and reinforcement in successful endeavors. Guidelines for the instruction of fundamental operations in mathematics cover addition, multiplication, subtraction, and division. The use of a number line in addition and the teaching of multiplication after addition and before subtraction are advocated. The number line is also advocated in the teaching of subtraction and division. The section on the teaching of time includes many sample work sheets that may be helpful in the sequential presentation of time-related concepts. The chapter on teaching of measurement emphasizes that the teaching of measurement will be augmented if many play activities requiring use of measurement techniques accompany the instruction. The last instructional section concerns money and emphasizes that children need to have many experiences handling real money under supervision. Suggested learning sequences, activities, and reinforcements accompany the sections on measurement, time, and money. (CB)

1405 ED 055 848

Nicholson, Alan D.

Developing Programs for Slow and Disenchanted Learners of Mathematics.

Montana State Dept. of Public Instruction, Helena.

Pub Date—71

Note—18p.

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—Curriculum, Elementary School Mathematics, *Laboratories, *Low Achievement, Mathematical Enrichment, *Mathematics Education, Remedial Programs, Secondary School Mathematics, *Slow Learners

This document is a source book for those who see the need to provide more meaningful mathematical experiences for students who have experienced little or no success in traditional programs. It is in four parts. In the first part, three innovative general mathematics projects are described. The second part outlines the mathematics laboratory approach, lists four books on the topic and gives some sources of activity packages, mathematical games and other equipment. The third part describes six courses for slow achievers which are available commercially, and the last part is a select bibliography on the low achiever. (MM)

1406 ED 053 980

Travers, Kenneth J. And Others

Teaching Resources for Low-Achieving Mathematics Classes.

ERIC Information Analysis Center for Science Education, Columbus, Ohio.

Pub Date—Jul 71

Note—66p.

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—*Bibliographies, Elementary School Mathematics, Laboratory Techniques, Low Ability Students, *Low Achievement, *Mathematics Education, *Resource Materials, Secondary School Mathematics, Student Characteristics, *Teaching Methods

This paper reviews teaching approaches and general resource materials for low achievers in both elementary and secondary mathematics classes. A survey of reported characteristics of low achievers is divided into two classes: (1) social and emotional problems, and (2) learning difficulties. Characteristics related to class 1 problems include: high rate of absence, goals for the immediate future only, low motivation, antisocial behavior, short interest span, and inability to see the practical use of mathematics. Characteristics related to class 2 problems include: a record of failure in mathematics, a fear of the subject, achievement scores at least two years below grade level, reading difficulties, inability to follow directions, tendency to leap to conclusions, and inability to generalize. Teaching approaches which have been reported as being successful include the use of computational aids, manipulative devices, and laboratory techniques. Also reported was the development of individualized short-term curriculum units, emphasizing success and immediate reward. The two bibliographies included are: (1) a bibliography of general resource material, and (2) an annotated bibliography of articles which have appeared in "The Arithmetic Teacher" and "The Mathematics Teacher" which suggest lessons for low achievers. (RS)

1407 ED 052 580

Resource Aid of Selected Materials for Remediation of Learning Disorders.

Boston Univ., Mass. New England Materials Instruction Center.

Spons Agency—Bureau of Education for the Handicapped (DHEW/OE), Washington, D.C.

Pub Date—71

Note—203p.

Available from—Boston University Bookstore, Special Services Desk, 775 Commonwealth Avenue, Boston, Massachusetts 02215 ($4.00)

EDRS Price - MF01/PC09 Plus Postage.

Descriptors—Diagnostic Tests, *Exceptional Child Education, *Instructional Materials, *Learning Disabilities, Mathematics, Reading Difficulty, Reading *Materials, Remedial Instruction, *Resource Materials

The resource guide helps formulate diagnostic profiles for children with specific learning disabilities, analyzes subsets of well-known batteries, and classifies materials to match areas of strength and weakness in learning. An adaptation of the Osgood model is used to identify and order the component abilities in learning. These component abilities are related to the curriculum areas of language arts and mathematics. In the Perceptual-Motor Chart, constituting Part 1, there are four columns: the first identifies and orders the component abilities in the learning process, the second suggests particular tests or subtests to indicate the strength or weakness of that particular function, the third suggests remedial instructional materials, and the fourth column is left vacant for teacher's evaluation of the success of the diagnostic prescription. Curriculum areas of reading, spelling, handwriting, and mathematics are represented in the chart. Part 2 presents bibliographic, price, content, and purpose information for the alphabetically listed tests and remedial instructional materials. Part 3, in addition to giving bibliographic information on available mathematics materials, contains analyses of mathematics skill areas and concepts to promote better understanding of the rationale of the instructional materials. (KW)

1408 ED 050 979
Mathematics for Basic Education, Grade 10, A Tentative Guide.
Baltimore County Public Schools, Towson, Md.
Pub Date—Sep 67
Note—321p.
EDRS Price - MF02/PC13 Plus Postage.
Descriptors—Behavioral Objectives, *Curriculum Guides, *Grade 10, Instruction, Low Ability Students, *Mathematics Education, Secondary School Mathematics, *Slow Learners, Worksheets

This curriculum guide is specifically designed for the slow learning students in grade 10. It is one of a series of course guides for grades 6-11. The intent of the curricular designers was to outline mathematical experiences which would be appropriate for the characteristics of these students. The areas of mathematical content included are: 1) numbers, operations, and algorithms, 2) geometry, 3) measurement, 4) graphing, 5) probability and statistics, 6) algebra, 7) logic. Each content area contains: 1) master charts for grades 6-11, 2) grade level chart for grade 10, 3) behavioral objectives for the area, 4) teacher commentary sheets, 5) student worksheets. A collection of recreational activities is included for student motivation. (RS)

1409 ED 050 978
Helwig, G. Alfred Brant, Vincent
Mathematics for Basic Education, Grade 9.
Baltimore County Public Schools, Towson, Md.
Pub Date—Sep 67
Note—381p.
Available from—Baltimore County Public Schools, Office of Curriculum Development, Towson, Maryland 21204
EDRS Price - MF03/PC16 Plus Postage.
Descriptors—Algebra, *Curriculum, *Curriculum Guides, Educationally Disadvantaged, Geometry, Logic, Probability, *Secondary School Mathematics, *Slow Learners, Statistics

This guide provides a structured program for the slow learner in mathematics grades 6-11. Suggestions for implementing the program are included. The guide is divided into the following major areas of mathematical competency: Fundamental Operations, Geometry, Measurement, Graphing, Algebra, Probability and Statistics, and Logic. Recreation is the last section of the book. Each of the areas of mathematical competency contains: master chart of mathematics content, grade level chart of mathematics content, list of behavioral objectives, and student activity descriptions and materials. This curriculum guide is one of several prepared for secondary school mathematics instruction by Baltimore County Public Schools. (JG)

1410 ED 050 977
Mathematics for Basic Education, Grade 8, A Tentative Guide.
Baltimore County Public Schools, Towson, Md.
Pub Date—Sep 67
Note—383p.
EDRS Price - MF03/PC16 Plus Postage.
Descriptors—Behavioral Objectives, Course Content, *Curriculum Guides, Elementary School Mathematics, *Grade 8, Instruction, Low Ability Students, *Mathematics Education, *Slow Learners, Worksheets

This curriculum guide is specifically designed for the slow learning students in grade 8. It is one of a series of course guides for grades 6-11. The intent of the curricular designers was to outline mathematical experiences which would be appropriate for the characteristics of these students. The areas of mathematical content included are: 1) numbers, operations, and algorithms, 2) geometry, 3) measurement, 4) graphing, 5) probability and statistics, 6) algebra, 7) logic. Each content area contains: 1) master charts for grades 6-11, 2) grade level chart for grade 8, 3) behavioral objectives for the area, 4) teacher commentary sheets, 5) student worksheets. A collection of recreational activities is included for student motivation. (RS)

1411 ED 050 976
Mathematics for Basic Education, Grade 7, A Tentative Guide.
Baltimore County Public Schools, Towson, Md.
Pub Date—Sep 67
Note—393p.
EDRS Price - MF03/PC16 Plus Postage.
Descriptors—Behavioral Objectives, Course Content, *Curriculum Guides, Elementary School Mathematics, *Grade 7, Instruction, Low Ability Students, *Mathematics Education, *Slow Learners, Worksheets

This curriculum guide is specifically designed for the slow learning students in grade 7. It is one of a series of course guides for grades 6-11. The intent of the curricular designers was to outline mathematical experiences which would be appropriate for the characteristics of these students. The areas of mathematical content included are: 1) numbers, operations and algorithms, 2) geometry, 3) measurement, 4) graphing, 5) probability and statistics, 6) algebra, 7) logic. Each content area contains: 1) master charts for grades 6-11, 2) grade level chart for grade 7, 3) behavioral objectives for the area, 4) teacher commentary sheets, 5) student worksheets. A collection of recreational activities is included for student motivation. (RS)

1412 ED 046 780
Allen, Charles And Others
Experiences in Mathematical Ideas, Volume 2.
National Council of Teachers of Mathematics, Inc., Washington, D.C.
Pub Date—70
Note—402p.
Available from—National Council of Teachers of Mathematics, 1201 16th St., N.W., Washington, D.C. 20036 ($10.00)
EDRS Price - MF03 Plus Postage. PC Not Available from EDRS.
Descriptors—Curriculum Development, *Elementary School Mathematics, *Instruction, *Instructional Materials, *Low Achievement, Mathematics Education, *Secondary School Mathematics
Identifiers—National Council of Teachers of Mathematics

This is volume 2 of a set of mathematics materials developed for low achievers. These materials are designed to help teachers provide interesting and worthwhile learning opportunities for students in grades five through eight who have had little success in mathematics. The materials may be used in conventional classroom settings as well as in team teaching, multi-unit programs, and other organizational structures. The units are not designed to be used as a complete mathematics program for low achievers, but rather as representative segments of mathematics needed by all students. A teaching package, containing materials that are closely correlated with individual activities within each unit, is also included for this volume. Topics considered in this volume include: Tables and Change, Using Tables to Solve Problems, Ratio, Graphs, Organizing Data, Dealing with Uncertainty, and Geometry. (Author/FL)

1413 ED 046 712
Allen, Charles And Others
Experiences in Mathematical Ideas.
National Council of Teachers of Mathematics, Inc., Washington, D.C.
Pub Date—70
Note—340p.; Vol. 1
Available from—National Council of Teachers of Mathematics, 1201 16th St., N.W., Washington, D.C. 20036 ($10.00)
EDRS Price - MF02 Plus Postage. PC Not Available from EDRS.
Descriptors—*Arithmetic, *Elementary School Mathematics, *Instruction, Instructional Materials, Mathematics, Numbers, Number Systems, *Slow Learners, *Teaching Guides

Developed by a committee of the National Council of Teachers of Mathematics, this publication is designed to help teachers provide interesting and worthwhile learning opportunities for slow learners in grades five through eight. It employs a variety of teaching strategies, many not commonly known or practiced, which are particularly helpful with slow learners. In particular, the activities suggested one of a "laboratory nature" and encourage participation by all students. The subjects covered include base and place value, renaming numbers in addition and subtraction, physical models for multiplication, units of measure, physical models for fractions, and physical models for decimals. Most of the units are independent of the others and need not be taught in any specified order nor at specified grade levels. The volume includes a "Teaching Package" containing materials which can be duplicated by the teacher for use as overheads, worksheets, or laboratory materials. (Author/CT)

1414 ED 030 992
Planning an Arithmetic Curriculum for the Educable Mentally Retarded. Special Education Curriculum Development Center; An In-Service Training Program.
Iowa Univ., Iowa City. Special Education Curriculum Development Center.
Spons Agency—Iowa State Dept. of Public Instruction, Des Moines.; Office of Education (DHEW), Washington, D.C.
Bureau No.—BR-6-2883-7
Pub Date—Nov 68
Grant—OEG-3-7-002883-0499
Note—144p.
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—*Curriculum, Curriculum Guides, Elementary School Students, *Exceptional Child Education, Mathematical Applications, Mathematical Concepts, Mathematical Models, *Mathematics, *Mental Retardation, Mild Mental Retardation, Money Management, Secondary School Students, Sequential Learning, *Teaching Methods, Time

The guide, intended as a model for teachers who will develop their own arithmetic curricular materials, introduces concepts sequentially from simple to complex and continues them from one level to the next at increasingly more difficult and abstract levels. The program is arbitrarily cut into four levels to correspond to school divisions: primary (ages 6 to 9), intermediate (ages 9 to 12), junior high (ages 12 to 14), and senior high (ages 14 to adulthood) which is oriented to job requirements and money management. It presents concepts or skills to be developed, suggests teaching methods and aids, and indicates practical ways for students to use these concepts and skills. Three sample units present 10 to 14 lessons on the personal approach to numbers (primary level), time (intermediate level), and checking account procedures (senior high level). (LE)

1415 ED 025 437
Zimmerman, Joseph
Central Iowa Low Achiever Mathematics Project - ESP.
Central Iowa Low-Achiever Mathematics Project, Des Moines.
Spons Agency—Office of Education (DHEW), Washington, D.C. Bureau of Elementary and Secondary Education.
Pub Date—[Nov 68]
Grant—OEG-3965
Note—64p.
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Curriculum, Curriculum Development, *Elementary School Mathematics, *Instructional Materials, *Low Achievement, *Mathematics, *Problem Solving, Secondary School Mathematics
Identifiers—Central Iowa Low Achiever Mathematics Project

The materials in this Enrichment Student Project (ESP) are designed especially for the low achiever student in mathematics. The booklet is a self contained unit consisting of four elements–a mathematical puzzle, a set of instructions, response sheets, and a suitable container for keeping the unit together. ESP is a motivational idea aimed at attracting the student's interest and promoting his involvement in a portion of mathematics that can be enjoyed. The materials which have been collected for this ESP, complete with solution of problems for the teacher's convenience involve peg, dissection, cube, and topology puzzles. This work was prepared under ESEA Title III contract. (RP)

1416 ED 025 432
Casey, Ralph And Others
Central Iowa Low Achiever Mathematics Project - Math in Sports.
Central Iowa Low-Achiever Mathematics Project, Des Moines.
Spons Agency—Office of Education (DHEW), Washington, D.C. Bureau of Elementary and Secondary Education.
Pub Date—[Nov 68]
Grant—OEG-3965
Note—67p.
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Arithmetic, Grade 7, Grade 8, Grade 9, *Instructional Materials, *Low Achievement, *Mathematics, Resource Materials, *Secondary School Mathematics
Identifiers—Central Iowa Low-Achiever Mathematics Project

These materials are designed especially for the low achieving student in mathematics. The booklet contains numerous sports-related exercises which have been prepared as examples of supplementary worksheets. The exercises are designed to take advantage of the student's interest in sports. Materials for this booklet, including the worksheets which are provided, draw on such sports as baseball, basketball, bowling, football, golf, tennis, and track. Mathematical skills emphasized are computational skills, decimals and percent, estimation and rounding off, and averaging numbers. This work was prepared under ESEA Title III contract. (RP)

1417 ED 025 431
Nibbelink, William H.
Central Iowa Low Achiever Mathematics Project - Measurement.
Central Iowa Low-Achiever Mathematics Project, Des Moines.
Spons Agency—Office of Education (DHEW), Washington, D.C. Bureau of Elementary and Secondary Education.
Grant—OEG-3965
Note—88p.
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—Arithmetic, Curriculum, Grade 7, Grade 8, Grade 9, Instruction, *Instructional Materials, *Low Achievement, *Measurement, *Secondary School Mathematics
Identifiers—Central Iowa Low-Achiever Mathematics Project

Developed in these materials is a concept of measurement. The unit begins with a fictitious system of measurement from which basic ideas about measurement are to be retained and later applied to other systems of measurement. It is hypothesized that it is easier for the student to abstract principles from a less tangible and unfamiliar system than from an endless sequence of systems. The initial contact with measurement is also made more exciting and entertaining than can be accomplished by a discourse on yards, feet, and inches. Several parts of this unit are conventional in approach. This work was prepared under ESEA Title III contract. (RP)

1418 ED 021 732
Foley, Jack L.
Events and Chance.
Pub Date—Aug 67
Note—15p.
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Arithmetic, Curriculum, *Curriculum Development, *Elementary School Mathematics, *Instructional Materials, Low Ability Students, Mathematics, *Probability, *Secondary School Mathematics, Statistics
Identifiers—Elementary and Secondary Education Act Title III

This booklet, one of a series, has been developed for the project, A Program for Mathematically Underdeveloped Pupils. A project team, including inservice teachers, is being used to write and develop the materials for this program. The materials developed in this booklet include (1) the meaning of probability, (2) counting outcomes, (3) mutually exclusive outcomes, and (4) independent outcomes. (RP)

1419 ED 020 897
FOLEY, JACK L.
ACTION WITH FRACTIONS, ADDITION AND SUBTRACTION.
Pub Date—AUG67
Note—34P.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Addition, *Arithmetic, *Elementary School Mathematics, Extracurricular Activities, Fractions, *Instructional Materials, Low Ability Students, *Mathematics, Subtraction
Identifiers—Elementary Secondary Education Act Title III

THIS BOOKLET, ONE OF A SERIES, HAS BEEN DEVELOPED FOR THE PROJECT, A PROGRAM FOR MATHEMATICALLY UNDERDEVELOPED PUPILS. A PROJECT TEAM, INCLUDING INSERVICE TEACHERS, IS BEING USED TO WRITE AND DEVELOP THE MATERIALS FOR THIS PROGRAM. THE MATERIALS DEVELOPED IN THIS BOOKLET INCLUDE (1) NUMBER RELATIONSHIPS, (2) EQUIVALENT FRACTIONS, (3) ADDITION AND SUBTRACTION OF RATIONAL NUMBERS, (4) LEAST COMMON DENOMINATORS, AND (5) SUPPLEMENTARY ACTIVITIES WITH RATIONAL NUMBERS. ACCOMPANYING THESE BOOKLETS WILL BE A "TEACHING STRATEGY BOOKLET" WHICH WILL INCLUDE A DESCRIPTION OF TEACHER TECHNIQUES, METHODS, SUGGESTED SEQUENCES, ACADEMIC GAMES, AND SUGGESTED VISUAL MATERIALS. (RP)

1420 ED 018 389
A LIST OF "GIMMICKS" FOR USE WITH JUNIOR HIGH SCHOOL STUDENTS.
Central Iowa Low-Achiever Mathematics Project, Des Moines.
Pub Date—67
Note—97P.
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—Arithmetic, Grade 7, Grade 8, Grade 9, *Instruction, Learning, *Low Achievement, Mathematics, *Resource Materials, *Secondary School Mathematics, Slow Learners
Identifiers—CENTRAL IOWA LOW-ACHIEVER MATHEMATICS PROJECT

THIS PAPER, CONSISTING OF A COLLECTION OF MATHEMATICS TEACHING IDEAS AND STUDENT ACTIVITIES, IS A COMPILATION OF THOSE FOUND TO BE MOST EFFECTIVE BY THE CONTRIBUTING TEACHERS IN THE 1967-68 CENTRAL IOWA LOW-ACHIEVER MATHEMATICS PROJECT. THE ACTIVITIES DESCRIBED IN THIS PAPER ARE INTENDED FOR JUNIOR HIGH SCHOOL STUDENTS WITH VARYING DEGREES OF COMPETENCE IN MATHEMATICS, INCLUDING THOSE STUDENTS CLASSIFIED AS LOW ACHIEVERS. (RP)

MEASUREMENT

1500 ED 183 405

Sigurdson, Orville And Others

Area. Topical Module for Use in a Mathematics Laboratory Setting.

Regional Center for Pre-Coll. Mathematics, Denver, Colo.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—73

Grant—NSF-GW-7720

Note—61p.; For related documents, see SE 030 304-322; Contains occasional light and broken type

Pub Type— Guides - Classroom - Learner (051) — Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—*Activities, Calculators, Geometric Concepts, *Learning Laboratories, Manipulative Materials, Mathematical Formulas, Mathematics Curriculum, *Mathematics Instruction, *Measurement, Secondary Education, *Secondary School Mathematics, Worksheets

Identifiers—*Area

This area package emphasizes three facets: (1) the concept of area as a covering; (2) the square unit; and (3) formula development. There are two enrichment activities included. The first requires the aid of a programmable calculator or computer. (Author/MK)

1501 ED 183 399

Trojan, Arthur Zastrocky, Mike

People Patterns: Measurement. Environmental Module for Use in a Mathematics Laboratory Setting.

Regional Center for Pre-Coll. Mathematics, Denver, Colo.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—73

Grant—NSF-GW-7720

Note—19p.; For related documents, see SE 030 304-322

Pub Type— Guides - Classroom - Learner (051) — Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—*Activities, Elementary School Mathematics, Elementary Secondary Education, Graphs, *Learning Laboratories, Mathematics Curriculum, *Mathematics Instruction, *Measurement, Metric System, *Secondary School Mathematics, Statistics, Worksheets

Identifiers—*Estimation

This module, concerned with measurement, provides a series of 12 worksheets that allow students to: compare their ability to walk and run to their physical attributes, play a game that involves various senses and measurements, and be grouped by various means and then compare the groups with certain measurements. Teaching suggestions are provided. (MK)

1502 ED 179 348

Resource Guide to Applied Basic Skills - I. Linear. Activity Booklet I: Quantitive.

Georgia Univ., Athens. Center for Educational Improvement.

Spons Agency—Bureau of Education for the Handicapped (DHEW/OE), Washington, D.C.; Georgia State Dept. of Education, Atlanta.

Pub Date—[78]

Note—117p.; For related documents, see SE 026 833-837; Not available in hard copy due to marginal legibility of original document

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Elementary Secondary Education, Instruction, *Instructional Materials, *Learning Activities, *Mathematics Education, *Measurement, *Objectives, Primary Education, *Skill Development

This activity booklet contains activities related to the skill category of linear measurement. For each behavior that is to be learned, activities are given for primary, elementary-middle, and secondary levels. Behaviors are categorized by level and are graded, with the easier tasks appearing first. (MP)

1503 ED 179 345

Resource Guide to Applied Basic Skills - F. Volume. Activity Booklet I: Quantitive.

Georgia Univ., Athens. Center for Educational Improvement.

Spons Agency—Bureau of Education for the Handicapped (DHEW/OE), Washington, D.C.; Georgia State Dept. of Education, Atlanta.

Pub Date—[78]

Note—140p.; For related documents, see SE 026 833-838; Not available in hard copy due to marginal legibility of original document

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Elementary Secondary Education, Geometric Concepts, Instruction, *Instructional Materials, *Learning Activities, *Mathematics Education, *Measurement, *Objectives, Primary Education, *Skill Development

This activity booklet contains activities related to the skill category of volume. For each behavior that is to be learned, activities are given for primary, elementary-middle, and secondary levels. Behaviors are categorized by level and are graded, with the easier tasks appearing first. (MP)

150[illegible] ED 179 344

Resource Guide to Applied Basic Skills - B. Calendar Time. Activity Booklet I: Quantitive.

Georgia Univ., Athens, Center for Educational Improvement.

Spons Agency—Bureau of Education for the Handicapped (DHEW/OE), Washington, D.C.; Georgia State Dept. of Education, Atlanta.

Pub Date—[78]

Note—42p.; For related documents, see SE 026 833-838; Not available in hard copy due to marginal legibility of original document

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Elementary Secondary Education, Instruction, *Instructional Materials, *Learning Activities, *Mathematics Education, *Measurement, Objectives, Primary Education, *Skill Development, *Time

This activity booklet contains activities related to the skill category of calendar time. For each behavior that is to be learned, activities are given for primary, elementary-middle, and secondary levels. Behaviors are categorized by level and are graded, with the easier tasks appearing first. (MP)

1505 ED 179 343

Resource Guide to Applied Basic Skills - A. Clock Time. Activity Booklet I: Quantitive.

Georgia Univ., Athens. Center for Educational Improvement.

Spons Agency—Bureau of Education for the Handicapped (DHEW/OE), Washington, D.C.; Georgia State Dept. of Education, Atlanta.

Pub Date—[78]

Note—53p.; For related documents, see SE 026 834-838; Not available in hard copy due to marginal legibility of original document

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—*Curriculum Guides, Elementary Secondary Education, *Instruction, *Learning Activities, *Mathematics Education, *Objectives, Primary Education, *Time

Activities related to the skill category "clock time" are given. For each objective, three levels of activities are given: primary, elementary-middle, and secondary. Enrichment activities are also provided. (MP)

1506 ED 171 547

Borelli, Michael L. Morelli, Sandra Z.

Teaching Measurement to Children: Grades K-6. Revised Edition.

Cortland-Madison Board of Cooperative Educational Services, Cortland, N.Y.

Spons Agency—New York State Education Dept., Albany.

Pub Date—78

Note—86p.

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC04 Plus Postage.

Descriptors—*Behavioral Objectives, *Curriculum Guides, Elementary Education, *Elementary School Mathematics, *Instruction, *Measurement, *Teaching

Objectives are listed describing the progression which students follow in learning to measure. These objectives follow a sequence that corresponds closely with the intellectual sequence found in students' learning. Grade-level recommendation charts follow the objectives. Topics dealt with are length, distance, area, volume, capacity, mass, and temperature. For each topic, non-numerical and numerical measurement objectives are listed. (MP)

1507 ED 160 381

Experimental Teaching Unit: Second Grade Mathematics.

Far West Lab. for Educational Research and Development, San Francisco, Calif.

Pub Date—74

Note—64p.; For related document, see SE 024 894; Pages 113-116 missing from document prior to its being shipped to EDRS for filming; Best copy available; Contains occasional light and broken type

Available from—Far West Laboratory for Educational Research & Development, Teacher Education Div., 1855 Folsom Street, San Francisco, California 94103 (no price quoted)

Pub Type— Guides - General (050)

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—Elementary Education, *Elementary School Mathematics, Elementary School Teachers, *Instructional Materials, *Learning, *Measurement, *Metric System, *Teaching Guides, Units of Study

The purpose of this unit is to develop basic concepts of measurement. The children will have a variety of experiences which make measurement concepts meaningful to them. This unit will provide some review of counting skills and simple addition and subtraction skills. The primary focus, however, is to build concepts of measurement in length, weight or mass, volume or capacity, and area; and extend them into a simple introduction to the metric system. Activities in each subtopic of this unit suggest ways to accomplish that. The subtopics are: comparisons, ordering, conservation, arbitrary units of measuring, and standard units of measuring. (Author/MP)

1508 ED 143 555

Blakers, A. L.

Studies in Mathematics, Volume XVII. Mathematical Concepts of Elementary Measurement.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—67

Note—427p.; For related documents, see SE 023 028-041; Contains occasional light and broken type

Pub Type— Books (010)

EDRS Price - MF01/PC18 Plus Postage.

Descriptors—Arithmetic, Inservice Education, *Instructional Materials, Mathematical Applications, *Measurement, *Number Concepts, *Secondary School Mathematics, *Textbooks

Identifiers—*School Mathematics Study Group

The objective of this book is to identify those mathematical concepts which are relevant to elementary measurement, and to exhibit their logical interrelationships. The book was written with high school mathematics teachers in mind, but it is hoped that it will be useful also to elementary school teachers, science teachers, and college teachers. The book could be useful as a text for an advanced undergraduate course, or as an inservice course for teachers. The mathematical background required is approximately that which is included in a good high school education. Sections in the book include: (1) Measurement and Measure Functions; (2) The Measurement of Numerosity and Length; (3) The Measurement of Angles, Area, and Volume; and (4) Measurement and Dimension. A list of references conclude the publication. Each section includes background information, discussion of concepts, some suggestions for instruction, and exercises. (RH)

1509 ED 143 537

Bolduc, Elroy J., Jr. And Others

Mathematics Through Science, Part I: Measurement and Graphing. Teacher's Commentary. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—64

Note—109p.; For related documents, see SE 023 015-020; Not available in hard copy due to mar-

ginal legibility of original document
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Junior High School Students, Mathematical Applications, Mathematics, *Measurement, *Physical Sciences, Secondary Education, *Secondary School Mathematics, *Teaching Guides
Identifiers—*School Mathematics Study Group

The purpose of this project is to teach learning and understanding of mathematics at grades seven through nine through the use of science experiments. Previous knowledge of science on the part of students or teachers is not necessary. Lists of needed equipment are found at the beginning of this volume. It is strongly recommended that the teacher try out each experiment before it is done in class. The experiments in part one involve basic measurements of length, mass, time, and temperature. The material can be covered in three or four weeks. Included in the Teacher's Commentary are background information, discussion of activities and exercises, and answers to problems. (RH)

1510 ED 143 536
Bolduc, Elroy J., Jr. And Others
Mathematics Through Science, Part I: Measurement and Graphing. Student Text. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—64
Note—123p.; For related documents, see SE 023 016-020
Pub Type— Books (010)
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—*Instructional Materials, Junior High School Students, Mathematical Applications, Mathematics, *Measurement, *Physical Sciences, Secondary Education, *Secondary School Mathematics, Textbooks
Identifiers—*School Mathematics Study Group

The purpose of this text is to teach learning and understanding of mathematics at grades seven through nine through the use of science experiments. Previous knowledge of science on the part of students or teachers is not necessary. The text is designed to be usable with any mathematics textbook in common use. The material can be covered in three or four weeks. Chapters in the text include: (1) Introduction to Measurement; (2) Length and the Number Line; (3) Relations, Functions, and Graphing; and (4) The Linear Function. Included in the book is a glossary of terms. (RH)

1511 ED 137 173
Tomich, John G. Gilray, James G.
Money-Go-Round: A Self Teaching Program.
Pub Date—73
Note—34p.
Pub Type— Guides - General (050)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Answer Keys, *Autoinstructional Aids, Concept Teaching, Consumer Education, Course Descriptions, Curriculum, *Economics Education, Elementary Secondary Education, Grade 4, Grade 5, Grade 6, *Inquiry, *Monetary Systems, Money Management, Objective Tests, *Programed Instructional Materials, Questioning Techniques, Social Studies, Teaching Methods

The self-instructional program is designed to give students in grades 4-6 new insights into the concept of money. By using the programmed learning material the students become acquainted with the evolution of money through questioning techniques. Students explore the concepts of barter, token money, coins, paper money, and checks. The paper contains a program description, student instructions for answering the questions and checking for correct responses, the Money-Go-Round Self Teaching Program, a test, and an answer key. The study of money is logically and progressively sequenced and is completely self-contained. Learning is broken down into small, graduated steps that facilitate successful responses, and reinforcement is provided throughout by frames that review previously taught concepts. Supplemental relevant information, such as the life span of a piece of paper money and the weight problems engendered by large numbers of coins, is often included in the answers to frames. A final test and complete answer key conclude the document. (Author/DB)

1512 ED 127 196
Ihrig, Elizabeth A., Ed.
Mapping the Globe, Transformations: MINNEMAST Coordinated Mathematics - Science Series, Unit 28.
Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—71
Note—167p.; For related documents, see SE021201-234; Photographs may not reproduce well; Transparencies at the end of the document were removed due to poor reproducibility
Available from—MINNEMAST, Minnemath Center, 720 Washington Ave., S.E., Minneapolis, MN 55414
Pub Type— Guides - General (050)
EDRS Price - MF01/PC07 Plus Postage.
Descriptors—*Curriculum Guides, Elementary Education, *Elementary School Mathematics, *Elementary School Science, Experimental Curriculum, *Interdisciplinary Approach, Learning Activities, Maps, Mathematics Education, Primary Education, Process Education, Science Education, Topology, *Transformations (Mathematics), Units of Study
Identifiers—*MINNEMAST, *Minnesota Mathematics and Science Teaching Project

This volume is the twenty-eighth in a series of 29 coordinated MINNEMAST units in mathematics and science for kindergarten and the primary grades. Intended for use by third-grade teachers, this unit guide provides a summary and overview of the unit, a list of materials needed, and descriptions of four groups of lessons. The purposes and procedures for each activity are discussed. Examples of questions and discussion topics are given, and in several cases ditto masters, stories for reading aloud, and other instructional materials are included in the book. This unit begins by distinguishing between measurable and nonmeasurable properties of 2- and 3-dimensional objects. Topological transformations are then introduced using shadows, rubber sheets, and clay. Projective transformations are examined and used in the making of maps. (SD)

1514 ED 127 186
Davis, Edith R., Ed.
Scaling and Representation: MINNEMAST Coordinated Mathematics - Science Series, Unit 18.
Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—71
Note—94p.; For related documents, see SE021201-234; Photographs may not reproduce well
Available from—MINNEMAST, Minnemath Center, 720 Washington Ave., S.E., Minneapolis, MN 55414
Pub Type— Guides - General (050)
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—*Curriculum Guides, Elementary Education, *Elementary School Mathematics, *Elementary School Science, Engineering Drawing, Experimental Curriculum, Geometric Concepts, *Interdisciplinary Approach, Learning Activities, Mathematics Education, Primary Education, Process Education, Science Education, *Units of Study
Identifiers—*MINNEMAST, *Minnesota Mathematics and Science Teaching Project

This volume is the eighteenth in a series of 29 coordinated MINNEMAST units in mathematics and science for kindergarten and the primary grades. Intended for use by second-grade teachers, this unit guide provides a summary and overview of the unit, a list of materials needed, and descriptions of 12 lessons. The purposes and procedures for each activity are discussed. Examples of questions and discussion topics are given, and in several cases ditto masters, stories for reading aloud, and other instructional materials are included in the book. This unit concerns the representation of objects, the use and construction of scale drawings and three-dimensional models, and the use of instruments. (SD)

1515 ED 127 180
Kraby, James Rieff, Marilyn
Measurement with Reference Units: MINNEMAST Coordinated Mathematics - Science Series, Unit 12.
Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—71
Note—206p.; For related documents, see SE021201-234; Photographs may not reproduce well
Available from—MINNEMAST, Minnemath Center, 720 Washington Ave., S.E., Minneapolis, MN 55414
Pub Type— Guides - General (050)
EDRS Price - MF01/PC09 Plus Postage.
Descriptors—*Curriculum Guides, Elementary Education, *Elementary School Mathematics, *Elementary School Science, Experimental Curriculum, *Interdisciplinary Approach, Learning Activities, Mathematics Education, *Measurement, Primary Education, Process Education, Science Education, Units of Study
Identifiers—*MINNEMAST, *Minnesota Mathematics and Science Teaching Project

This volume is the twelfth in a series of 29 coordinated MINNEMAST units in mathematics and science for kindergarten and the primary grades. Intended for use by first-grade teachers, this unit guide provides a summary and overview of the unit, a list of materials needed, and descriptions of four groups of lessons. The purposes and procedures for each activity are discussed. Examples of questions and discussion topics are given, and in several cases ditto masters, stories for reading aloud, and other instructional materials are included in the book. This unit is concerned with measurement of length, area, volume, and time durations. After reviewing the comparison of objects in a previous unit, the idea of standard units is introduced; a variety of tools (e.g., paper clip chains, popsicle sticks, rulers) is used in measurement activities. The pendulum and a variety of clocks are used in activities related to time. (SD)

1516 ED 127 173
Edmunds, Polly T. Schrankler, William
Introducing Measurement: MINNEMAST Coordinated Mathematics - Science Series, Unit 5.
Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—71
Note—116p.; For related documents, see SE021201-234
Available from—MINNEMAST, Minnemath Center, 720 Washington Ave., S.E., Minneapolis, MN 55414
Pub Type— Guides - General (050)
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—*Curriculum Guides, Elementary Education, *Elementary School Mathematics, *Elementary School Science, Experimental Curriculum, *Interdisciplinary Approach, Learning Activities, Mathematics Education, *Measurement, Primary Education, Process Education, Science Education, Units of Study
Identifiers—*MINNEMAST, *Minnesota Mathematics and Science Teaching Project

This volume is the fifth in a series of 29 coordinated MINNEMAST units in mathematics and science for kindergarten and the primary grades. Intended for use by kindergarten teachers, this unit guide provides a summary and overview of the unit, a list of materials needed, and descriptions of four groups of activities. The purposes and procedures for each activity are discussed. Examples of questions and discussion topics are given, and in several cases ditto masters, stories for reading aloud, and other instructional materials are included in the book. This unit presents activities related to measurement. Individual sections of the unit concern: (1) length, (2) area, (3) volume, and (4) time. In each section, the activities are concerned with comparison of objects (or durations), and development of ideas related to ordering. A brief list of children's books related to measurement is included. (SD)

1517 ED 123 083

Cosler, Norma, Ed.

Individualized Math Problems in Volume. Oregon Vo-Tech Mathematics Problem Sets.

Oregon Math Education Council, Salem.; Oregon State Dept. of Education, Salem. Career and Vocational Education Section.

Pub Date—74

Note—47p.; For related documents, see SE 020 628-648

Available from—Continuing Education Publications, P.O. Box 1491, Portland, Oregon 97207

Pub Type— Guides - General (050)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—*Geometry, Individualized Instruction, *Instructional Materials, Mathematical Applications, Mathematics Education, *Problem Sets, Secondary Education, *Secondary School Mathematics, *Solid Geometry, *Vocational Education

Identifiers—*Oregon Vo Tech Math Project

This is one of eighteen sets of individualized mathematics problems developed by the Oregon Vo-Tech Math Project. Each of these problem packages is organized around a mathematical topic and contains problems related to diverse vocations. Solutions are provided for all problems. Problems in this booklet require the computation of volumes of solids, and other related computations (density, surface area). Problems are drawn from seven vocational areas: construction, forest products, forestry, electronics, aviation mechanics, wood products, and wastewater technology. (SD)

1518 ED 123 076

Cosler, Norma, Ed.

Individualized Math Problems in Measurement and Conversion. Oregon Vo-Tech Mathematics Problem Sets.

Oregon Math Education Council, Salem.; Oregon State Dept. of Education, Salem. Career and Vocational Education Section.

Pub Date—74

Note—97p.; For related documents, see SE 020 628-648

Available from—Continuing Education Publications, P.O. Box 1491, Portland, Oregon 97207

Pub Type— Guides - General (050)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Individualized Instruction, *Instructional Materials, Mathematical Applications, Mathematics Education, *Measurement, *Problem Sets, Secondary Education, *Secondary School Mathematics, *Vocational Education

Identifiers—*Oregon Vo Tech Math Project

This is one of eighteen sets of individualized mathematics problems developed by the Oregon Vo-Tech Math Project. Each of these problem packages is organized around a mathematical topic and contains problems related to diverse vocations. Solutions are provided for all problems. This volume includes problems involving measurement, computation of areas and volumes from linear measurements, and conversion from one measure system to another. The problems are drawn from eleven vocational areas: marketing, construction, forestry, forest products, clerical work, wood products, welding, electronics, agriculture, drafting, industrial mechanics, and nursing. Tables of conversion are included. (SD)

1519 ED 123 067

Cosler, Norma, Ed.

Individualized Math Problems in Area. Oregon Vo-Tech Mathematics Problem Sets.

Oregon Math Education Council, Salem.; Oregon State Dept. of Education, Salem. Career and Vocational Education Section.

Pub Date—74

Note—47p.; For related documents, see SE 020 628-648

Available from—Continuing Education Publications, P.O. Box 1491, Portland, Oregon 97207

Pub Type— Guides - General (050)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—*Geometry, Individualized Instruction, *Instructional Materials, Mathematical Applications, Mathematics Education, *Problem Sets, Secondary Education, *Secondary School Mathematics, *Vocational Education

Identifiers—*Area, *Oregon Vo Tech Math Project

This is one of eighteen sets of individualized mathematics problems developed by the Oregon Vo-Tech Math Project. Each of these problem packages is organized around a mathematical topic and contains problems related to diverse vocations. Solutions are provided for all problems. This package contains problems related to measurement of area which arise in six vocational situations (construction, diesel mechanics, electronics, forestry, forest products, and drafting). (SD)

1520 ED 113 193

Suggestions for Teaching Mathematics Using Laboratory Approaches Grades 1-6. 4. Measurement. Experimental Edition.

New York State Education Dept., Albany. Bureau of Elementary Curriculum Development.

Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C. Div. of Compensatory Education.

Pub Date—[74]

Note—52p.; Related documents are SE 019 740-742

Pub Type— Guides - General (050)

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—Elementary Education, *Elementary School Mathematics, Guides, Instructional Materials, *Laboratory Manuals, *Manipulative Materials, Mathematics Materials, *Measurement, Teacher Developed Materials, *Teaching Guides

Identifiers—Elementary Secondary Education Act Title I

This guide describes activities and materials which can be used in a mathematics laboratory approach to a basic mathematics program for grades 1-6. One-hundred thirteen activities pertaining to measurement concepts are described in terms of purpose, suggested grade levels, materials needed, and procedures. Some specific concepts include: linear measurement (33 activities), area and volume (31 activities), weight measurement (31 activities), time measurement (18 activities), estimation, inequalities, equalities, graphing, comparisons, circumference, scale drawing, applications, similarity, non standard units, measure, counting, surface area, weight, density, indirect area measure, cost calculations, conservation, recording data, problem solving, time continuum, directionality, shadows and time relationships. Most activities utilize the English system of measurement, but many can be adapted to the metric system. The guide concludes with a list of selected manipulative materials for mathematics laboratory use. (JBW)

1521 ED 094 996

Muckey, Roy Luce, Marjory

Mathematics for the Elementary School, Unit 18, Mapping.

Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—65

Note—68p.

Pub Type— Guides - General (050)

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—Curriculum, *Elementary School Mathematics, Experiential Learning, *Geometric Concepts, Graphs, Instruction, *Instructional Materials, *Teaching Guides, *Transformations (Mathematics), Units of Study, Worksheets

Identifiers—Functions (Mathematics), MINNEMAST, *Minnesota Mathematics and Science Teaching Project

The Minnesota School Mathematics and Science Teaching (MINNEMAST) Project is characterized by its emphasis on the coordination of mathematics and science in the elementary school curriculum. Units are planned to provide children with activities in which they learn various concepts from both subject areas. Each subject is used to support and reinforce the other where appropriate, with common techniques and concepts being sought and exploited. Content is presented in story fashion. The stories serve to introduce concepts and lead to activities. Imbedded in the pictures that accompany the stories are examples of the concepts presented. This unit provides students with an opportunity to discuss the need for scale drawings and the techniques used in their construction. Students are introduced to the idea that one unit can represent another kind of unit. These ideas are used to build some initial concepts of function and lead into rational numbers via ratios. Worksheets and commentaries to the teacher are provided and additional activities are suggested. (JP)

1522 ED 094 984

Powell, Bonnie, Ed. And Others

Mathematics for the Elementary School, Unit 3, Measurement.

Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—65

Note—54p.

Pub Type— Guides - General (050)

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—*Conservation (Concept), *Curriculum, *Elementary School Mathematics, Experiential Learning, Instruction, *Instructional Materials, *Measurement, *Teaching Guides, Worksheets

Identifiers—MINNEMAST, *Minnesota Mathematics and Science Teaching Project

The Minnesota School Mathematics and Science Teaching (MINNEMAST) Project is characterized by its emphasis on the coordination of mathematics and science in the elementary school curriculum. Units are planned to provide children with activities in which they learn various concepts from both subject areas. Each subject is used to support and reinforce the other where appropriate, with common techniques and concepts being sought and exploited. Content is presented in story fashion. The stories serve to introduce concepts and lead to activities. Imbedded in the pictures that accompany the stories are examples of the concepts presented. Several of the activities outlines in this unit on measurement closely resemble some of the experiments conducted by Piaget in his original research. The concepts presented include the principle that liquid volume is unchanged by the size or shape of its container and that a solid mass has the same displacement, regardless of its shape or form. The treatment of measurement is approached in comparative rather than absolute terms. The questions of "how much" and "how many" have been deferred until later and the usage of the terms "more than" and "less than" are presented. Worksheets and commentaries to the teacher are provided and additional activities are suggested. (JP)

1523 ED 090 009

Thompson, Russ Fuller, Albert

Basic Math I, Package 01-10, Measures.

Arnold Public Schools, Nebr.

Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.

Pub Date—72

Note—43p.; For related documents, see SE 017 553 through 561 and SE 017 563 through 575

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Geometric Concepts, Grade 9, Individualized Instruction, *Instructional Materials, *Measurement, Metric System, Objectives, *Secondary School Mathematics, *Teaching Guides, *Tests

Identifiers—Elementary Secondary Education Act Title III, *General Mathematics

This teacher guide is part of the materials prepared for an individualized program for ninth-grade algebra and basic mathematics students. Materials written for the program are to be used with audiovisual lessons recorded on tape cassettes. For an evaluation of the program, see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are included for each topic covered. Work in this package centers on measurement. Problems are presented for converting from one unit to another within a system and from the British system to the metric system. Area and volume measurement of various geometrical figures are also among the topics covered. This work was prepared under an ESEA Title III contract. (JP)

1524 ED 075 232

Guerriero, Carl A.

A Guide to Field Mathematics.

Pennsylvania State Dept. of Education, Harrisburg. Bureau of General and Academic Education.

Pub Date—72

Note—65p.

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—*Experiential Learning, Instruction, Instructional Materials, *Laboratory Procedures, Manipulative Materials, *Mathematical Applications, Mathematics Education, *Measurement, *Secondary School Mathematics

This guide includes a chapter on concepts related to measurement, a chapter describing the various measuring instruments that are used in the field, and a chapter indicating realistic class projects using field instruments. Twenty-three plates contained in the publication are designed as masters to make transparencies for classroom instruction. A bibliography of 28 source books is included. (Author/DT)

1525 ED 069 538
Measurement, Grades 4-6.
Halton County Board of Education, Burlington (Ontario).
Pub Date—[72]
Note—48p.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Curriculum, *Elementary School Mathematics, Experiential Learning, *Geometric Concepts, Instruction, *Instructional Materials, Intermediate Grades, Laboratory Procedures, Mathematics Education, *Measurement, Worksheets

This is a collection of mathematics laboratory activities related to the topics of linear and square measure. There are a number of experimental situations from which results may be generalized. Also included are worksheets, examples and discussion questions which are based on practical situations whenever possible. The materials are for student use and contain no comments for teachers. (LS)

1526 ED 063 123
Burns, James A.
Mathematics: Measurement Lab.
Dade County Public Schools, Miami, Fla.
Pub Date—71
Note—30p.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Curriculum, Instruction, Instructional Materials, *Laboratories, Mathematical Applications, Mathematics Education, *Measurement, *Secondary School Mathematics, *Teaching Guides, Units of Study
Identifiers—*Quinmester Program

This course is a laboratory approach to linear measurement, perimeter, circumference, area of square and rectangle, volume of rectangular solids, and fluid measurement. Applications include use of ruler, meter stick, thermometer, beaker, air gauge, geometric solids, and geoboards. After lists of overall goals, overall strategies, specific performance objectives, and scope, the guide gives suggested strategies, materials, and references for twelve units. Also included are sample test items and an annotated bibliography of state-adopted and other textbooks. (MM)

1527 ED 033 031
Averages, Areas and Volumes; Cambridge Conference on School Mathematics Feasibility Study No. 45.
Cambridge Conference on School Mathematics, Newton, Mass.
Pub Date—[69]
Note—32p.
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Calculus, Elementary School Mathematics, *Geometry, *Instructional Materials, Mathematical Concepts, *Secondary School Mathematics

Presented is an elementary approach to areas, columns and other mathematical concepts usually treated in calculus. The approach is based on the idea of average and this concept is utilized throughout the report. In the beginning the average (arithmetic mean) of a set of numbers is considered and two properties of the average which often simplify the arithmetic is noted. Averages are further used to solve a number of important practical problems - to find the work done in stretching a spring, the distance which a body dropped from rest falls in a given time, and the force against a rectangular dam. The volume of solids bounded by two parallel planes is determined by multiplying the distance between the planes by the average cross-sectional area. These volumes can be used to find the force on a dam of triangular or semicircular shape. It is believed that the procedures outlined in this document are sufficiently simple to be taught as early as grade 6. [Not available in hard copy due to marginal legibility of original document]. (RP)

1528 ED 020 890
FOLEY, JACK L.
METRIC GEOMETRY LINEAR MEASURE.
Pub Date—AUG67
Note—49P.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Arithmetic, *Elementary School Mathematics, Geometry, *Instructional Materials, Low Ability Students, *Mathematics
Identifiers—Elementary Secondary Education Act Title III, MEASUREMENT STUDENT ACTIVITIES

THIS BOOKLET, ONE OF A SERIES, HAS BEEN DEVELOPED FOR THE PROJECT, A PROGRAM FOR MATHEMATICALLY UNDERDEVELOPED PUPILS. A PROJECT TEAM, INCLUDING INSERVICE TEACHERS, IS BEING USED TO WRITE AND DEVELOP THE MATERIALS FOR THIS PROGRAM. THE MATERIALS DEVELOPED IN THIS BOOKLET INCLUDE (1) THE HISTORY AND MEANING OF LINEAR MEASURE, (2) FINDING THE APPROXIMATE PERIMETER OF CIRCLES, TRIANGLES, AND RECTANGLES, AND (3) USE OF THE MICROMETER FOR MEASURING LINEAR DISTANCES. ACCOMPANYING THESE BOOKLETS WILL BE A "TEACHING STRATEGY BOOKLET" WHICH WILL INCLUDE A DESCRIPTION OF TEACHER TECHNIQUES, METHODS, SUGGESTED SEQUENCES, ACADEMIC GAMES, AND SUGGESTED VISUAL MATERIALS. (RP)

1529 ED 020 889
FOLEY, JACK L.
VOLUME AND SURFACE AREA.
Pub Date—AUG67
Note—30P.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Arithmetic, *Elementary School Mathematics, Extracurricular Activities, Geometry, *Instructional Materials, Low Ability Students, *Mathematics
Identifiers—Elementary Secondary Education Act Title III

THIS BOOKLET, ONE OF A SERIES, HAS BEEN DEVELOPED FOR THE PROJECT, A PROGRAM FOR MATHEMATICALLY UNDERDEVELOPED PUPILS. A PROJECT TEAM, INCLUDING INSERVICE TEACHERS, IS BEING USED TO WRITE AND DEVELOP THE MATERIALS FOR THIS PROGRAM. THE MATERIALS DEVELOPED IN THIS BOOKLET INCLUDE (1) MEASURING VOLUMES OF RECTANGULAR SOLIDS, RIGHT RECTANGULAR PYRAMIDS, CYLINDERS, CONES AND SPHERES, AND (2) FINDING THE SURFACE AREA OF ELEMENTARY GEOMETRICAL CONFIGURATIONS. ACCOMPANYING THESE BOOKLETS WILL BE A "TEACHING STRATEGY BOOKLET" WHICH WILL INCLUDE A DESCRIPTION OF TEACHER TECHNIQUES, METHODS, SUGGESTED SEQUENCES, ACADEMIC GAMES, AND SUGGESTED VISUAL MATERIALS. (RP)

METRIC MEASUREMENT

1600 ED 183 406

Alderman, Harry And Others

Introduction to Metric Measurement. Topical Module for Use in a Mathematics Laboratory Setting.

Regional Center for Pre-Coll. Mathematics, Denver, Colo.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—74

Grant—NSF-GW-7720

Note—58p.; For related documents, see SE 030 304-322

Pub Type— Guides - Classroom - Learner (051) — Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—*Activities, Elementary School Mathematics, Elementary Secondary Education, *Learning Laboratories, Mathematics Curriculum, Mathematics Instruction, *Measurement, *Metric System, *Secondary School Mathematics, Worksheets

The purpose of this module is to teach the basic metric measures of length, area, volume, capacity, mass, and temperature. It introduces students to metric prefixes, abbreviations, and unit conversions with the system. Illustrative and optional material compares metric measures to our familiar American standard measures. The purposes are accomplished through the use of detailed explanations, experiments, charts, games, and manipulatives. After an introduction which points up the need for a uniform international measurement system, the student proceeds through a series of experiments and worksheets. Most problems are related in some way to a physical model or actual measurement device. (Author/MK)

1601 ED 178 303

Metric Measurement: A Handbook for Elementary Teachers and Administrators.

Oklahoma State Dept. of Education, Oklahoma City.

Pub Date—77

Note—75p.

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—Change Strategies, Concept Formation, *Curriculum Guides, Elementary Secondary Education, Integrated Activities, Learning Activities, *Mathematics Curriculum, *Mathematics Education, *Mathematics Instruction, *Measurement, *Metric System, Resource Materials

The purposes of this metric handbook are: (1) to help teachers understand the general principles of measurement instruction; (2) to help teachers understand how children develop measuring concepts; (3) to provide information that will help teachers learn to use SI metrics; (4) to provide examples of learning experiences that teachers can use with learners; (5) to help teachers integrate metric instruction into the existing curriculum through an interdisciplinary approach so that it does not become an isolated topic; (6) to provide teachers with information about sources of materials needed to supplement textbooks already in use; and (7) to provide administrators and teachers with suggested procedures for implementing metric instruction. Chapter topics include historical developments, using metric units, developing measurement concepts, measurement learning activities, and administrative implications and recommendations. (MP)

1602 ED 173 169

Road Map Math (Metric Edition). Revised Edition.

Illinois State Office of Education, Springfield.

Pub Date—76

Note—57p.

Available from—Program Planning and Development, Illinois Office of Education, 100 North First St., Springfield, Illinois 62777 (no price quoted)

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—Elementary Secondary Education, *Language Arts, Learning Activities, *Map Skills, *Mathematics Education, *Mathematics Instruction, *Measurement, *Metric System, Student Projects, Worksheets

This booklet, designed for use with varying levels of remedial mathematics students in grades 6-10, is intended to help the student become more comfortable using the metric system, reinforce the metric ideas and notions that are taught in other courses, and aid in the development of basic mathematical skills by having the student participate in measuring activities. The unit consists of two basic parts: (1) map skills exercises for individualized work; and (2) the trip-planning project, which provides an opportunity for the mathematics teacher and the language arts teacher to correlate one or more lessons. (MP)

1603 ED 173 168

Handbook of Classroom and Workshop Metric Activity Stations.

Illinois State Office of Education, Springfield.

Pub Date—[78]

Note—71p.

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—*Curriculum Guides, Elementary Secondary Education, Inservice Education, *Learning Activities, Mathematics Curriculum, *Mathematics Education, *Mathematics Instruction, *Measurement, *Metric System, Worksheets, Workshops

The objectives of this handbook are to assist K-8 classroom teachers in launching an activity-oriented metric program that provides learning experiences in the measurement strands of linear, mass, and temperature, and to assist metric coordinators in planning metric awareness workshops for teachers, parents, and various community organizations. Detailed instructions are given for setting up a metric activity station. The pages of the handbook are designed to be used as instructions at various metric activity stations. (MP)

1604 ED 173 167

Color Metric.

Illinois State Office of Education, Springfield.

Pub Date—78

Note—34p.

Available from—Program Planning and Development, Illinois Office of Education, 100 North First St., Springfield, Illinois 62777 (no price quoted)

Pub Type— Guides - Classroom - Learner (051)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Elementary Secondary Education, *Learning Activities, *Mathematics Curriculum, *Mathematics Education, *Mathematics Instruction, *Measurement, *Metric System, Worksheets

This booklet was designed to convey metric information in pictoral form. The use of pictures in the coloring book enables the more mature person to grasp the metric message instantly, whereas the younger person, while coloring the picture, will be exposed to the metric information long enough to make the proper associations. Sheets of the booklet are ready for duplication. Topics covered include temperature, length, volume, and weight. (MP)

1605 ED 173 166

About Using the Metric System.

Illinois State Office of Education, Springfield.

Pub Date—78

Note—16p.; Not available in hard copy due to marginal legibility of original document

Pub Type— Guides - General (050)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Computation, *Educational Change, Elementary Secondary Education, *Mathematics Curriculum, *Mathematics Education, *Mathematics Instruction, *Measurement, *Metric System, Resource Materials

This booklet contains a brief introduction to the use of the metric system. Topics covered include: (1) what is the metric system; (2) how to think metric; (3) some advantages of the metric system; (4) basics of the metric system; (5) how to measure length, area, volume, mass and temperature the metric way; (6) some simple calculations using metric units; and (7) a metric system test. (MP)

1606 ED 173 141

Guidelines for Teaching Metric Concepts.

Wisconsin State Dept. of Public Instruction, Madison.

Spons Agency—Office of Education (DHEW), Washington, D.C.

Pub Date—75

Note—13p.; Guide prepared through the Dissemination Project

Pub Type— Guides - Classroom - Teacher (052) — Guides - Non-Classroom (055)

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—*Concept Formation*, Curriculum, Educational Change, Elementary Secondary Education, *Guidelines, *Mathematics Education, *Mathematics Instruction, *Measurement, *Metric System, *Objectives

The primary purpose of these guidelines is to provide teachers and other decision-makers with a suggested framework within which sound planning for metric education can be done. Student behavioral objectives are listed by topic. Each objective is coded to indicate grade level, topic, and objective number. A chart is provided to show a kindergarten through eighth-grade perspective as far as metric objectives are concerned. Topics dealt with include length, area, capacity, volume, weight, temperature, density, force, velocity, and acceleration. (MP)

1607 ED 171 557

Elementary Metric Curriculum - Project T.I.M.E. (Timely Implementation of Metric Education). Part II.

Community School District 18, Brooklyn, N.Y.

Spons Agency—New York State Education Dept., Albany.; Office of Education (DHEW), Washington, D.C.

Pub Date—79

Grant—42-C-77-13134-2-Dev.

Note—125p.; For related document, see SE 027 738; Not available in hard copy due to marginal legibility of original document

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Activity Units, *Elementary Education, *Elementary School Mathematics, Instructional Materials, *Mathematics Education, *Mathematics Materials, Measurement, *Metric System, Teaching Guides

This is the second part of a two-part teacher's manual for an ISS-based elementary school course in the metric system. Behavioral objectives and student activities are included. Topics include: (1) capacity; (2) calculation of volume and surface area of cylinders and cones; (3) mass; (4) temperature; and (5) metric conversions. (BB)

1608 ED 171 556

Elementary Metric Curriculum - Project T.I.M.E. (Timely Implementation of Metric Education). Part I.

Community School District 18, Brooklyn, N.Y.

Spons Agency—New York State Education Dept., Albany.; Office of Education (DHEW), Washington, D.C.

Pub Date—79

Grant—42-C-77-13134-2-Dev.

Note—123p.; For related document, see SE 027 739; Not available in hard copy due to marginal legibility of original document

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Activity Units, *Elementary Education, *Elementary School Mathematics, Instructional Materials, *Mathematics Education, *Mathematics Materials, Measurement, *Metric System, Teaching Guides

This is a teacher's manual for an ISS-based elementary school course in the metric system. Behavioral objectives and student activities are included. The topics covered include: (1) linear measurement; (2) metric-decimal relationships; (3) metric conversions; (4) geometry; (5) scale drawings; and (6) capacity. This is the first of a two-part manual. (BB)

1609 ED 171 555

Metrics: The Future is Now!

Community School District 18, Brooklyn, N.Y.

Spons Agency—New York State Education Dept., Albany.; Office of Education (DHEW), Washington, D.C.

Pub Date—79

Note—153p.; Contains light and broken type

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—*Activity Units, *Instructional Materials, Junior High Schools, *Mathematics Education, *Mathematics Materials, Measurement, *Metric System, Secondary Education, Secondary School Mathematics, Teaching Guides

Presented are junior high school curriculum materials for teaching the metric system. Included are behavioral objectives, pre- and post-tests, introductory and historical material, and units on linear measurement, geometry, weight, capacity, and temperature. Each unit contains many student activities such as puzzles, fill in the blanks problems, and measurement of household objects. (BB)

1610 ED 170 150
Teacher Resource Guide for Metric Education.
Michigan State Dept. of Education, Lansing.
Pub Date—[78]
Note—53p.
Pub Type— Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Child Development, *Concept Formation, Elementary Secondary Education, *Instruction, Instructional Materials, Learning Activities, *Mathematics Education, *Measurement, *Metric System, *Resource Materials

The intent of this document is to provide answers to questions related to teaching the metric system. Topics covered include: (1) A Model for Developing Understanding and Skills in Measurement; (2) Metric Measurement Units; (3) SI Do's and Don'ts; (4) Examples of Everyday Uses of SI Measures; (5) Child Development and Learning to Measure; (6) Choosing Instructional Material and Equipment; (7) A Minimal List of Metric Equipment and Materials; (8) A Desirable List of Metric Equipment and Materials; (9) Metric Equipment and Materials You Can Make; (10) Activities and Games; (11) A Brief History of Metric Measurement and Legislation; (12) A Guide for Writing Learning Sequences in Measurement; and (13) Activities to Involve the Community. (MP)

1611 ED 167 361
Huber, Roland B.
Hi Metric Fans! We're the Metric Mice. Elementary Metric Project Awareness Booklet.
Pub Date—78
Note—22p.; Contains occasional light type
Pub Type— Reports - Descriptive (141) — Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Curriculum, Elementary Education, *Elementary School Mathematics, *Instruction, Instructional Materials, *Measurement, *Metric System, Program Descriptions, Validated Programs, *Worksheets
Identifiers—*Elementary Metric Project, National Diffusion Network Programs

An overview and samples of some of the materials contained in the Elementary Metric Project's curriculum for grades 1-6 are presented. Information is given concerning the adoption of the program. The sample activity sheets deal with linear measurement, mass, volume, and temperature. (MP)

1612 ED 164 257
A Guide to Teaching the Metric System. 1977 Edition.
Pennsylvania State Dept. of Education, Harrisburg. Bureau of Curriculum Services.
Pub Date—77
Note—31p.; For related document, see ED 102 020; Contains occasional light and broken type
Pub Type— Guides - General (050)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Behavioral Objectives, Curriculum, Elementary Secondary Education, *Instruction, Learning Activities, *Mathematics Education, *Measurement, *Metric System, *Teaching Guides, Teaching Methods

Three bulletins are contained in this packet designed to help teachers introduce the metric system. Bulletin one contains objectives and related teaching suggestions for the following topics: length, area, volume, mass, and temperature. Bulletin two contains a fact sheet and rules for symbols and notation. Bulletin three contains classroom activities. (MP)

1613 ED 160 390
Metrics, The Measure of Your Future: Metrics in the K-8 Curriculum - A Multidisciplinary Guide to Transition.
North Carolina State Dept. of Public Instruction, Raleigh. Div. of Development.; Winston-Salem City Schools, N.C.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—Mar 76
Grant—ESEA-43-74-259
Note—197p.; For related documents, see SE 024 900-907; Not available in hard copy due to marginal legibility of original document
Available from—Instructional Materials Development Center, 2720 South Main Street, Winston-Salem, North Carolina 27107 ($4.00)
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Behavioral Objectives, *Elementary School Mathematics, Elementary Secondary Education, Experiential Learning, *Instructional Materials, Instructional Programs, Measurement, *Metric System, Secondary School Mathematics, *Teaching Guides, *Tests

This teacher's guide contains a complete list of goals, behavioral objectives, activities, materials and equipment, and tests needed for implementing a metric education program in grades K-8. Ten broad goals are listed and each behavioral objective is referenced to one of these. The behavioral objectives are also referenced to grade levels and to the activities list. The activities are referenced to grade levels, to the materials list and to the goals. The materials and equipment are referenced to a list of publishers, producers, and suppliers along with the costs and dates of publication. The materials and equipment list is coded for teacher reaction, the code being from 1 through 5 for each of the following levels: primary, intermediate, junior high, adult education, senior high, and teachers. The criterion-referenced test items are referenced to goals, grade levels and behavioral objectives. The tests are multiple choice but are designed for interview testing at the lower levels. The number of choices range from two at the lower levels to four at the upper levels. (MP)

1614 ED 160 389
Metrics, The Measure of Your Future: All Together Now - Teach Metrics.
North Carolina State Dept. of Public Instruction, Raleigh. Div. of Development.; Winston-Salem City Schools, N.C.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—Dec 76
Grant—ESEA-69-77-028
Note—60p.; For related documents, see SE 024 900-907; Contains occasional light and broken type
Available from—Instructional Materials Development Center, 2720 South Main Street, Winston-Salem, North Carolina 27107 ($2.00)
Pub Type— Guides - General (050)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—*Elementary School Mathematics, Elementary School Teachers, Elementary Secondary Education, *Guides, *Inservice Education, Measurement, *Metric System, Secondary School Mathematics, Teaching Guides

These materials were developed for in-service workshops for K-8 teachers as part of the Winston-Salem/Forsyth County Metric Education Project. A teacher (or team of two) from each school was trained in a series of six 3-hour sessions using hands-on measurement activities. Teachers in turn were responsible for conducting 10 1-hour in-service sessions in their own schools. The materials are written for the leaders of the school phase of the inservice education project. Each of the 10 chapters contains specific instructions on how to conduct the session. These instructions are divided into the following categories: (1) In Advance; (2) You Need; (3) Suggested Activities; (4) Assignment; and (5) Notes. Following each instruction sheet, the details of the lesson plan are given including background materials for the sessions, written materials needed, transparency suggestions, etc. The 10 chapters are: (1) Background and Status; (2) Temperature, Time and Money; (3) Non-Standard and Arbitrary Units; (4) Linear-Centimeter; (5) Linear-Meter, Etc.; (6) Area-Squares; (7) Volume-Cubes; (8) Capacity-Liquids; (9) Man-Weight-Force; and (10) Vocabulary-Form-Symbols. (MP)

1615 ED 160 387
Metrics, The Measure of Your Future: Criterion-Referenced Metrics Tests, Levels K-8, Form A.
North Carolina State Dept. of Public instruction, Raleigh. Div. of Development.; Winston-Salem City Schools, N.C.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—May 77
Grant—ESEA-69-77-028
Note—33p.; For related documents, see SE 024 900-907; Not available in hard copy due to marginal legibility of original document
Available from—Instructional Materials Development Center, 2720 South Main St., Winston-Salem, North Carolina 27107 ($1.00)
Pub Type— Tests/Questionnaires (160)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Criterion Referenced Tests, *Elementary School Mathematics, Elementary Secondary Education, *Evaluation, *Interviews, Measurement, *Metric System, Secondary School Mathematics, *Tests

An extensive list of criterion-referenced metric test items are published in this booklet for use by educators in levels K-8. Multiple-choice tests are referenced to the goals and behavioral objectives published in "Metrics in the K-8 Curriculum." Each test item is labeled according to grade level, broad goal, and behavioral objective. Questions for the kindergarten level are designed for a one-to-one setting. There are two choices for each item. At levels 1 and 2, the teacher reads each item aloud; the students mark their own papers. Again there are two choices. For children who can read with average skill in levels 3 to 8, a written test is given with three choices at levels 3-4, and four at levels 5-8. If reading level warrants, the teacher may read aloud and/or use transparencies. (MP)

1616 ED 160 384
Metrics, The Measure of Your Future: The Meter was Never Like This and MetricMisQuotes.
North Carolina State Dept. of Public Instruction, Raleigh. Div. of Development.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—Dec 77
Note—10p.; For related documents, see SE 024 901-907; Contains light and broken type
Available from—Instructional Materials Development Center, 2720 South Main St., Winston-Salem, NC 27107 (No price quoted)
Pub Type— Journal Articles (080)
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Bulletins, *Elementary School Mathematics, Elementary Secondary Education, Humor, *Instructional Materials, Measurement, *Metric System, *Parody, *Poetry, *Resource Materials, Secondary School Mathematics

Humorous imitations of famous poems and quotations, altered with metric language, are presented in this document published by the Winston-Salem/-Forsyth County Schools Metric Education Project. In addition, a section entitled "A Metrikey" relates metric units to familiar items such as width of doorknobs, areas of typewriter keys, etc. (MP)

1617 ED 156 433
Johnson, Willis N. And Others
Measurement Module: The International (SI) Metric System.
Spons Agency—Murray State Univ., Ky.; Office of Education (DHEW), Washington, D.C.
Pub Date—78
Contract—561-AH-70073
Note—59p.; Not available in hard copy due to marginal legibility of original document
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Activity Units, Bibliographies, *Guidelines, History, *Instruction, Interdisciplinary Approach, Mathematics Education, Measurement, *Metric System, *Teacher Education, Teaching Methods

This module was prepared to "metricate" approximately 3800 teachers in Western Kentucky. A brief history of measurement systems is followed by sections concerning length, mass (weight), temperature, and area and volume measurement. Each section contains a list of the common metric units used and their relationship as well as activities for learning to think with metric measures. A pretest and posttest are included. The appendices contain treatments of the metric system rules and units; metric units for everyday use; recommendations, ideas, and teaching suggestions for developing metric programs and introducing the metric system; and a bibliography of metric publications along with a list of metric materials available at no cost to teachers as well as available inexpensive metric publications. (MN)

1618 ED 148 574

Otto, Karen And Others

Primary Metrics.

Wisconsin Univ., Eau Claire.

Pub Date—76

Note—63p.; For related documents, see SE 023 286-291; Not available in hard copy due to copyright restrictions; Contains colored pages throughout entire document

Available from—Dr. Juanita Sorenson, University of Wisconsin-Eau Claire, Library 1109, Eau Claire, Wisconsin 54701 ($3.50)

Pub Type— Guides - General (050)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Elementary Education, *Elementary School Mathematics, *Experiential Learning, Instruction, *Instructional Materials, *Measurement, *Metric System, Resource Materials

Identifiers—*Wisconsin

These 55 activity cards were created to help teachers implement a unit on metric measurement. They were designed for students aged 5 to 10, but could be used with older students. Cards are color-coded in terms of activities on basic metric terms, prefixes, length, and other measures. Both individual and small-group games and ideas are included. (MS)

1619 ED 146 058

Sledge, Lydia Wells Thompson, Charles S.

The Common Sense Metric Manual.

Kentucky State Dept. of Education, Frankfort.

Pub Date—77

Note—33p.; Some parts may be marginally legible due to small type

Pub Type— Guides - General (050)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Elementary Secondary Education, *Instruction, Interdisciplinary Approach, Learning Activities, Mathematics Education, *Measurement, *Metric System, Objectives, *Resource Materials, *Teaching Guides

Identifiers—*Kentucky

This manual was written to provide basic information on the metric system for Kentucky teachers. Why we are going metric is briefly discussed, followed by a concise presentation of metric measures. What children should learn is specified in terms of competencies for grades 3, 6, and 9. Teaching tips are presented, with activities for use with children. Inferences for five other curricular areas are noted. A list of 19 useful materials is also included. (MS)

1620 ED 146 010

Metric Education Plan for Virginia.

Virginia State Dept. of Education, Richmond. Div. of Secondary Education.

Spons Agency—Office of Education (DHEW), Washington, D.C.

Pub Date—Jun 77

Note—62p.

Pub Type— Guides - General (050)

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—Curriculum, Educational Planning, Elementary Secondary Education, *Guidelines, Instruction, *Interdisciplinary Approach, *Mathematics Education, Measurement, *Metric System, *State Curriculum Guides, State Departments of Education

Identifiers—*Virginia

This comprehensive document is the result of statewide planning for the implementation of metric education in Virginia schools. An introduction discusses the rationale, needs, and continuing objectives for metric education. An organizational structure for metric education in Virginia is outlined. Guidelines for administrative planning are presented in terms of organizing local metric programs, community awareness programs, educational media, inservice programs, school lunch program, telecommunications, teacher certification, and the state testing program. Instructional programs are outlined in some detail for: elementary, adult, agricultural, art, business, distributive, driver, English, foreign language, health and physical, home economics, industrial arts, mathematics, music, science, social studies, special trade and industrial, and vocational education. Curriculum applications, teacher education, and activities for students are presented for each subject matter field. An annotated bibliography, sources of free materials, metric measurement activities and games, guidelines for evaluation, a teacher's self-inventory, an attitude scale, criteria for selecting materials, and sample test items are also included. (MS)

1621 ED 141 108

The 4M companY: Make Mine Metric Mission! Sixth Grade Teacher's Guide.

Hawaii State Dept. of Education, Honolulu.; Hawaii Univ., Honolulu. Coll. of Education.

Pub Date—76

Note—81p.; For related documents, see SE 022 570-582

Available from—Metric Project, University of Hawaii, 1776 University Ave., Honolulu, Hawaii 96822 ($3.00)

Pub Type— Guides - General (050)

EDRS Price - MF01/PC04 Plus Postage.

Descriptors—Elementary Education, *Elementary School Mathematics, *Instructional Materials, *Mathematics Education, *Measurement, *Metric System, *Teaching Guides

This is one of several teacher's guides for the 4M Company, a set of materials for teaching metric concepts and computation skills to elementary school students. Included in the guide are sections on needed materials, metric symbols, length, perimeter, area, volume, capacity, mass (weight), decimals, conversion between metric units, temperature, and a minicourse on metrics. Answers to the activities in the related student activity manual are included. (RH)

1622 ED 141 107

The 4M companY: Make Mine Metric Mission! Sixth Grade Student Booklet.

Hawaii State Dept. of Education, Honolulu.; Hawaii Univ., Honolulu. Coll. of Education.

Pub Date—76

Note—74p.; For related documents, see SE 022 570-583

Available from—Metric Project, University of Hawaii, 1776 University Ave., Honolulu, Hawaii 96822 ($1.00)

Pub Type— Guides - General (050)

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—Elementary Education, *Elementary School Mathematics, *Instructional Materials, *Mathematics Education, *Metric System, Workbooks

This student activity manual for elementary students is designed to teach several metric units. Included are activities related to length, area, volume, mass, and temperature. This manual emphasizes units, measuring, and computation skills. Computation skills stressed include addition, subtraction, and multiplication. Problems include whole numbers and decimals. Activities include a variety of drill sheets interspersed with other activities. Cartoons are used extensively to appeal to student interests. (RH)

1623 ED 141 106

The 4M compaNy: Make Mine Metric Mystery. Fifth Grade Teacher's Guide.

Hawaii State Dept. of Education, Honolulu.; Hawaii Univ., Honolulu. Coll. of Education.

Pub Date—76

Note—72p.; For related documents, see SE 022 570-583; Not available in hard copy due to marginal legibility of original document

Available from—Metric Project, University of Hawaii, 1776 University Ave., Honolulu, Hawaii 96822 ($3.00)

Pub Type— Guides - General (050)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Elementary Education, *Elementary School Mathematics, *Instructional Materials, *Mathematics Education, *Measurement, *Metric System, *Teaching Guides

This is one of several teacher's guides for the 4M Company, a set of materials for teaching metric concepts and computation skills to elementary school students. Included in this guide are sections on needed materials, metric prefixes and symbols, length, decimals, perimeter, area, volume, mass, temperature, and a minicourse on metrics. Answers to the activities in the related student activity manual are included. (RH)

1624 ED 141 105

The 4M compaNy: Make Mine Metric Mystery. Fifth Grade Student Booklet.

Hawaii State Dept. of Education, Honolulu.; Hawaii Univ., Honolulu. Coll. of Education.

Pub Date—76

Note—63p.; For related documents, see SE 022 570-583

Available from—Metric Project, University of Hawaii, 1776 University Ave., Honolulu, Hawaii 96822 ($1.00)

Pub Type— Guides - General (050)

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—Elementary Education, *Elementary School Mathematics, *Instructional Materials, *Mathematics Education, *Metric System, Workbooks

This student activity manual for elementary students is designed to teach several concepts related to the metric system and measurement. Included are activities related to length, area, volume, conversion of metric units, and computation skills with decimals (addition, subtraction, and division). Cartoons are used extensively to appeal to student interests. (RH)

1625 ED 141 104

The 4M compAny: Make Mine Metric Mob. Fourth Grade Teacher's Guide.

Hawaii State Dept. of Education, Honolulu.; Hawaii Univ., Honolulu. Coll. of Education.

Pub Date—76

Note—87p.; For related documents, see SE 022 570-583; Not available in hard copy due to marginal legibility of original document

Available from—Metric Project, University of Hawaii, 1776 University Ave., Honolulu, Hawaii 96822 ($3.00)

Pub Type— Guides - General (050)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Elementary Education, *Elementary School Mathematics, *Instructional Materials, *Mathematics Education, *Measurement, *Metric System, *Teaching Guides

This is one of several teacher's guides for the 4M Company, a set of materials for teaching metric concepts and computation skills to elementary school students. Included in this guide are sections on needed materials, temperature, length, metric prefixes, decimals, mass, area, perimeter, and a minicourse on metrics. Answers to the activities in the related student activity manual are included. (RH)

1626 ED 141 103

The 4M compAny: Make Mine Metric Mob. Fourth Grade Student Booklet.

Hawaii State Dept. of Education, Honolulu.; Hawaii Univ., Honolulu. Coll. of Education.

Pub Date—76

Note—84p.; For related documents, see SE 022 570-583

Available from—Metric Project, University of Hawaii, 1776 University Ave., Honolulu, Hawaii 96822 ($1.00)

Pub Type— Guides - General (050)

EDRS Price - MF01/PC04 Plus Postage.

Descriptors—Elementary Education, *Elementary School Mathematics, *Instructional Materials, *Mathematics Education, *Metric System, Workbooks

This student activity manual for elementary students is designed to teach several metric units. Included are activities related to temperature, length, volume, and mass. In this manual reading, adding, and subtracting decimals is stressed. Activities include a variety of drill sheets. Cartoons are used extensively to appeal to student interests. (RH)

1627 ED 141 102

The 4M comPany: Make Mine Metric Marvels. Third Grade Teacher's Guide.

Hawaii State Dept. of Education, Honolulu.; Hawaii Univ., Honolulu. Coll. of Education.

Pub Date—76

Note—102p.; For related documents, see SE 022 570-583; Not available in hard copy due to marginal legibility of original document

Available from—Metric Project, University of Hawaii, 1776 University Ave., Honolulu, Hawaii 96822 ($3.00)

Pub Type— Guides - General (050)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Elementary Education, *Elementary School Mathematics, *Instructional Materials, *Mathematics Education, *Measurement, *Metric System, *Teaching Guides

This is one of several teacher's guides for the 4M Company, a set of materials for teaching metric concepts and computation skills to elementary school students. Included in this guide are sections on needed materials, length (ancient Hawaiian units, meter decimeter, centimeter, addition, subtraction), decimals related to meters (measurement, addition, subtraction), capacity (liter, deciliter) decimals related to liters (addition, subtraction), mass (gram, kilogram, addition, subtraction), perimeter, temperature, and a minicourse on metrics. Answers to the activities in the related student activity manual are included. (RH)

1628 ED 141 101
The 4M comPany: Make Mine Metric Marvels. Third Grade Student Booklet.
Hawaii State Dept. of Education, Honolulu.; Hawaii Univ., Honolulu. Coll. of Education.
Pub Date—76
Note—62p.; For related documents, see SE 022 570-583
Available from—Metric Project, University of Hawaii, 1776 University Ave., Honolulu, Hawaii 96822 ($1.00)
Pub Type— Guides - General (050)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Elementary Education, *Elementary School Mathematics, *Instructional Materials, *Mathematics Education, *Metric System, Workbooks

This student activity manual for elementary students is designed to teach several metric units. Included are activities related to length (meter), volume (liter), mass (grams), and temperature (celsius). Activities include a variety of drill sheets interspersed with other activities. Cartoons are used extensively to appeal to student interests. (RH)

1629 ED 141 100
The 4M coMpany: Make Mine Metric Monsters. Second Grade Teacher's Guide.
Hawaii State Dept. of Education, Honolulu.; Hawaii Univ., Honolulu. Coll. of Education.
Pub Date—76
Note—77p.; For related documents, see SE 022 570-583; Not available in hard copy due to marginal legibility of original document
Available from—Metric Project, University of Hawaii, 1776 University Ave., Honolulu, Hawaii 96822 ($3.00)
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Elementary Education, *Elementary School Mathematics, *Instructional Materials, *Mathematics Education, *Measurement, *Metric System, *Teaching Guides

This is one of several teacher's guides for the 4M Company, a set of materials for teaching metric concepts and computation skills to elementary school students. Included in this guide are sections on needed materials, length (comparison, arbitrary units, meter, decimeter, centimeter, addition, subtraction), capacity (comparison, arbitrary units, liter, deciliter, addition, subtraction), mass (comparison, arbitrary units, gram, kilogram), temperature, and a minicourse on metrics. Answers to the activities in the related student activity manual are included. (RH)

1630 ED 141 099
The 4M coMpany: Make Mine Metric Monsters. Second Grade Student Booklet.
Hawaii State Dept. of Education, Honolulu.; Hawaii Univ., Honolulu. Coll. of Education.
Pub Date—76
Note—57p.; For related documents, see SE 022 570-583
Available from—Metric Project, University of Hawaii, 1776 University Ave., Honolulu, Hawaii 96822 ($1.00)
Pub Type— Guides - General (050)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Elementary Education, *Elementary School Mathematics, *Instructional Materials, *Mathematics Education, *Metric System, *Primary Education, Workbooks

This student activity manual for primary students is designed to teach several metric units. Included are activities related to length, volume, mass, and temperature. This manual emphasizes learning to measure, reading instruments, spelling terms, and making comparisons. Activities include a variety of drill sheets interspersed with other activities. Cartoons are used extensively to appeal to student interests. (RH)

1631 ED 141 098
The 4M cOmpany: Make Mine Metric Mice. First Grade Teacher's Guide.
Hawaii State Dept. of Education, Honolulu.; Hawaii Univ., Honolulu. Coll. of Education.
Pub Date—76
Note—65p.; For related documents, see SE 022 570-583; Not available in hard copy due to marginal legibility of original document
Available from—Metric Project, University of Hawaii, 1776 University Ave., Honolulu, Hawaii 96822 ($3.00)
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Elementary Education, *Elementary School Mathematics, *Instructional Materials, *Mathematics Education, *Measurement, *Metric System, *Teaching Guides

This is one of several teacher's guides for the 4M Company, a set of materials for teaching metric concepts and computation. This level of the program extends comparisons from two objects to comparisons involving three or more objects. Vocabulary includes superlatives (longest) as well as comparatives (longer). Students are introduced to six metric units: meter, decimeter, liter, deciliter, gram, and kilogram. They compare these units to properties of common objects and learn to measure with several tools. Conservation of length, liquid, and mass are also included. (Author/RH)

1632 ED 141 097
The 4M cOmpany: Make Mine Metric Mice. First Grade Student Booklet.
Hawaii State Dept. of Education, Honolulu.; Hawaii Univ., Honolulu. Coll. of Education.
Pub Date—76
Note—55p.; For related documents, see SE 022 570-583
Available from—Metric Project, University of Hawaii, 1776 University Ave., Honolulu, Hawaii 96822 ($1.00)
Pub Type— Guides - General (050)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Elementary Education, *Elementary School Mathematics, *Instructional Materials, *Mathematics Education, *Metric System, *Primary Education, Workbooks

This student activity manual for primary students is designed to teach several metric units. Included are activities related to length, volume, mass, and temperature. This manual emphasizes making comparisons between objects - big, small, long, short, heavy, light, most, least, hotter and colder. Measuring skills are also stressed. Cartoons are used extensively to appeal to student interests. (RH)

1633 ED 141 096
The 4M Company: Make Mine Metric Monkeys. Kindergarten Teacher's Guide.
Hawaii State Dept. of Education, Honolulu.; Hawaii Univ., Honolulu. Coll. of Education.
Pub Date—76
Note—46p.; For related documents, see SE 022 570-583; Not available in hard copy due to marginal legibility of original document
Available from—Metric Project, University of Hawaii, 1776 University Ave., Honolulu, Hawaii 96822 ($3.00)
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Elementary Education, *Elementary School Mathematics, *Instructional Materials, *Mathematics Education, *Measurement, *Metric System, *Teaching Guides

This is one of several teacher's guides for the 4M Company, a set of materials for teaching metric concepts and computation. This level of the program deals with premeasurement concepts and vocabulary and introduces the basic metric units. Students compare properties of common objects directly. Students are introduced to four metric units: meter, liter, gram, and kilogram. Piagetian conservation tasks dealing with length, liquid, and mass are part of the program at this level. Included in the publication are needed materials, discussion of the activities, examples of responses for related student activities, and a minicourse on metric concepts. (RH)

1634 ED 141 095
The 4M Company: Make Mine Metric Monkeys. Kindergarten Student Booklet.
Hawaii State Dept. of Education, Honolulu.; Hawaii Univ., Honolulu. Coll. of Education.
Pub Date—76
Note—30p.; For related documents, see SE 022 571-583
Available from—Metric Project, University of Hawaii, 1776 University Ave., Honolulu, Hawaii 96822 ($1.00)
Pub Type— Guides - General (050)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Elementary Education, *Elementary School Mathematics, *Instructional Materials, *Mathematics Education, *Metric System, *Primary Education, Workbooks

This student activity manual for primary students is designed to teach several concepts related to measurement. Included are activities related to length, volume, and mass. The manual emphasizes comparisons between objects - big, small, long, short, heavy, light, most, and least. Cartoons are used extensively to appeal to student interests. (RH)

1635 ED 141 073
Gourley, Frank A., Jr.
Metrics Course Outline and Resources.
North Carolina State Dept. of Community Colleges, Raleigh.
Pub Date—Sep 76
Note—34p.; Contains occasional light type
Pub Type— Guides - General (050)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Adult Education, *Community Colleges, *Course Descriptions, Curriculum, Higher Education, *Mathematics Education, Measurement, *Metric System, *Resource Materials, Technical Education

This booklet is intended as one resource to be used in teaching the metric system in community colleges and technical institutes or in other types of adult education programs. Beginning with a list of seven objectives, the guide provides a detailed outline for a course organized around these objectives. The seven sections of the course are titled: (1) Orientation to the Metric System; (2) The Metric System; (3) Estimating Metric Quantities (length and mass); (4) Derived Units of Length and Mass; (5) Additional Metric Quantities and Units; (6) Conversion Factors; and (7) Metric Measurements and Metric Equipment. A small amount of instructional material related to each section is provided. A list of suggested resources, organized by topic, completes the booklet. (SD)

1636 ED 137 125
How to Teach Metric Now.
Worcester Public Schools, Mass.
Pub Date—[73]
Note—85p.; Page 25 containing a copyrighted article from the magazine "Grade Teacher" was removed. It is not included in the pagination
Pub Type— Guides - General (050)
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—*Curriculum Guides, *Elementary Education, *Learning Activities, *Mathematics Education, *Measurement, *Metric System, Resource Materials, Secondary Education

This curriculum guide for grades K-6 was prepared to assist teachers and students in learning about the metric system. An introductory section presents a brief history of the metric system and the rationale for introducing it into the schools. Instructional objectives and suggested learning activities are presented for each grade level. The activities vary in format, and sometimes include objectives and followup as well as materials required and procedures. Sample activities include using measuring wheels; weighing snow; using scales, bar graphs, and the Celsius thermometer; and constructing a quadrate out of doors. A short section illustrates how the metric system can be taught at the junior and senior high levels. Background and reference materials for the teacher in the intermediate grades are provided and include tables, charts, and conversion data. A list of references used in preparing the guide is appended. (RG)

1637 ED 137 124

Metric. Career Education Program.

Salem City Schools, N.J.

Pub Date—[73]

Note—58p.; Pages 12, 13 and 58 were removed due to copyright restrictions; Not available in hard copy due to marginal legibility of original document

Available from—The Career Education Project, Salem High School, Salem, New Jersey 08079 ($1.50)

Pub Type— Guides - General (050)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—*Elementary Secondary Education, *Instructional Materials, *Learning Activities, *Mathematics Education, *Measurement, *Metric System, Resource Materials

This is a compilation of instructional materials to assist teachers and students in learning about the metric system. Contents are organized into four color-coded sections containing the following: (1) background and reference materials for the teacher, including a list of available media and a conversion chart; (2) metric activities for primary grades; (3) metric activities for the middle school; and (4) metric activities for high schools. Over 12 activities are included in each of the sections and can be adapted for other instructional levels. Sample activities are making a liter container, treasure hunts, map skills, shopping, and baking. The activities vary in format but generally include a list of materials and procedures. (RG)

1638 ED 134 437

Deane, H. Panetta, P.

Metric Activities for Elementary Grades.

York Borough Board of Education, Toronto (Ontario).

Pub Date—Sep 76

Note—58p.; Not available in hard copy due to marginal legibility of original document

Available from—Professional Library, Education Administration Centre, 2 Trethewey Drive, Toronto, Ontario, Canada M6M 4A8 (limited number of single copies available free)

Pub Type— Guides - General (050)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Curriculum, *Elementary School Mathematics, Elementary Secondary Education, *Instruction, Instructional Materials, Laboratory Procedures, Learning Activities, Mathematics Education, *Measurement, *Metric System, *Worksheets

This booklet contains a series of worksheets on the metric system to be used with students at the elementary school level. Twenty of the worksheets are concerned with linear measurement, four with area, ten with mass, and four with capacity. (DT)

1639 ED 133 168

Callahan, Dorothea T.

An Effort to Implement and Reinforce the Teaching of Metrication Through the Development of Innovative Games.

Pub Date—76

Note—105p.

Pub Type— Guides - General (050)

EDRS Price - MF01/PC05 Plus Postage.

Descriptors—Curriculum, *Educational Games, *Elementary School Mathematics, Elementary Secondary Education, Games, *Instruction, Instructional Materials, Learning Activities, Mathematics Education, *Measurement, *Metric System, Program Descriptions, Teacher Developed Materials

This document reports on the development of a group of new games for teaching the metric system in the elementary school. The preliminary steps in getting teachers involved in the project are discussed, and details are given concerning the procedures for developing and evaluating the games. An inventory of 12 games is presented; for each game the materials needed, the number of players, age of players, and rules of the game are specified. A brief evaluation of the project is included. (DT)

1640 ED 131 225

Edgecomb, Philip L. Shapiro, Marion

Introduction to Metrics.

Rutgers, The State Univ., New Brunswick, N.J. Curriculum Lab.

Spons Agency—New Jersey State Dept. of Education, Trenton. Div. of Vocational Education.

Pub Date—Jun 76

Note—122p.

Available from—New Jersey Vocational-Technical Curriculum Laboratory, Bldg 4103, Kilmer Campus, Rutgers University, New Brunswick, N. J. 08903 ($2.50 plus postage)

Pub Type— Guides - General (050)

EDRS Price - MF01/PC05 Plus Postage.

Descriptors—Curriculum, Instructional Materials, *Learning Activities, *Mathematics Curriculum, Mathematics Materials, *Measurement, *Metric System, Secondary Education, Teaching Guides, Vocational Education, Workbooks

Addressed to vocational, or academic middle or high school students, this book reviews mathematics fundamentals using metric units of measurement. It utilizes a common-sense approach to the degree of accuracy needed in solving actual trade and every-day problems. Stress is placed on reading off metric measurements from a ruler or tape, and on changing units by moving the decimal point. It is designed to reinforce the student's ability to solve problems and includes eight units: Introduction to Metrics, Working with Metric Math, Linear Measurement, Area Measurement, Volume Measurement, Mass or Weight, Temperature Measurement, and Metric Threads. Each unit contains from one to six lessons with each lesson including objectives, text material, and learning activities (discussion questions or written exercises). The seven appendixes include numerous conversion charts as well as charts of screw-thread sizes. (HD)

1641 ED 127 144

Draper, Bob, Comp.

Metric Activities, Grades K-6.

San Diego City Schools, Calif.

Pub Date—75

Note—43p.

Pub Type— Guides - General (050)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Elementary Education, *Elementary School Mathematics, Instruction, *Instructional Materials, *Learning Activities, Mathematics Education, *Measurement, *Metric System, Worksheets

This pamphlet presents worksheets for use in fifteen activities or groups of activities designed for teaching the metric system to children in grades K through 6. The approach taken in several of the activities is one of conversion between metric and English units. The majority of the activities concern length, area, volume, and capacity. A bulletin board idea for introducing the Celsius scale is included. In addition to the worksheets, the pamphlet includes a brief history of the metric system and rationale for the United States' adoption of it, and a list of materials and audio-visual aids available to teachers in the San Diego City Schools. (SD)

1642 ED 125 914

Cooley, Debra L.

Try It You'll Like It: Let's Go Metric.

Pub Date—76

Note—48p.; Not available in hard copy due to marginal legibility of original document

Pub Type— Guides - General (050)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Behavioral Objectives, Elementary Education, *Elementary School Mathematics, Evaluation, Instruction, *Instructional Materials, *Learning Activities, *Measurement, *Metric System, Worksheets

This document provides a series of worksheets for use in elementary school instruction concerning the metric system. The broad objective of the instruction is that the student be "comfortable and accurate in using metric measures in daily life." Specific objectives are identified in six categories: (1) think metric, (2) linear measures, (3) temperature, (4) metric in the kitchen and market, (5) let's educate the public, and (6) careers in metric. For each objective, instructional activities and suggestions for criterion referenced evaluation are discussed. (SD)

1643 ED 124 425

Metrics in the K-8 Curriculum: A Multidisciplinary Guide to Transition.

North Carolina State Dept. of Public Instruction, Raleigh. Div. of Development.

Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.

Pub Date—Mar 76

Grant—NC-43-74-259

Note—127p.; Not available in hard copy due to light and broken type throughout

Available from—Instructional Materials Development Center, 2720 South Main Street, Winston-Salem, North Carolina 27107 ($4.00)

Pub Type— Guides - General (050)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—*Behavioral Objectives, Curriculum, *Elementary School Mathematics, Elementary Secondary Education, Guidelines, *Instruction, *Instructional Materials, Interdisciplinary Approach, Mathematics Education, Measurement, *Metric System, Secondary School Mathematics

Identifiers—Elementary Secondary Education Act Title III

These guidelines for the implementation of instruction in the metric system in grades K-8 were developed under the philosophy that students should develop the ability to use the metric system in all aspects of their lives. Therefore the approach outlined is an interdisciplinary one with minimal attention to conversion from the English to the metric system. Ten broad goals are stated, and behavioral objectives related to each goal are defined for each of the nine grade levels. Suggestions for activities are provided for each behavioral objective. A list of materials which can be purchased for use in each of these activities is accompanied by a list of addresses of suppliers. Criterion-referenced tests for each grade level are included. (SD)

1644 ED 123 077

Cosler, Norma, Ed.

Individualized Math Problems in Metrics. Oregon Vo-Tech Mathematics Problem Sets.

Oregon Math Education Council, Salem.; Oregon State Dept. of Education, Salem. Career and Vocational Education Section.

Pub Date—74

Note—8p.; For related documents, see SE 020 628-648

Available from—Continuing Education Publications, P.O. Box 1491, Portland, Oregon 97207

Pub Type— Guides - General (050)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Individualized Instruction, *Instructional Materials, Mathematical Applications, Mathematics Education, Measurement, *Metric System, *Problem Sets, Secondary Education, *Secondary School Mathematics, *Vocational Education

Identifiers—*Oregon Vo Tech Math Project

This is one of eighteen sets of individualized mathematics problems developed by the Oregon Vo-Tech Math Project. Each of these problem packages is organized around a mathematical topic and contains problems related to diverse vocations. Solutions are provided for all problems. This booklet contains a problem on metric measurement in the area of auto mechanics, tables for estimating metric measures of apothecary quantities, and a list of commonly used abbreviations. (SD)

1645 ED 119 993

Geppert, William J. And Others

Introduction to Metric Measurement. A Guide for Instruction of Measurement Techniques in the International Metric System of Measurement. Reprint.

Delaware State Dept. of Public Instruction, Dover.; Del Mod System, Dover, Del.

Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C. Div. of State Agency Cooperation.; National Science Foundation, Washington, D.C.

Report No.—NSF-GW-6703

Pub Date—Oct 74

Note—47p.; Occasional marginal legibility due to colors used

Available from—Mr. John F. Reiher, State Supervisor of Science and Environmental Education, Dept. of Public Instruction, John G. Townsend Building, Dover, Delaware 19901 (Free while supply lasts)

Pub Type— Guides - General (050)

EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Curriculum, *Curriculum Guides, Elementary Secondary Education, Instruction, *Learning Activities, *Mathematics Education, *Measurement, *Metric System, State Departments of Education, Tests, Worksheets, Workshops
Identifiers—Delaware, *Del Mod System, National Science Foundation

This booklet provides the teacher with an overview of the development and use of the metric system, a set of rules and definitions of metric terms, a series of suggested activities related to the metric system, guidelines for conducting metric workshops, and a list of potential sources of resource materials. Measurement pre- and posttests are also included. Many of the activities described are appropriate for students at all grade levels. The tests are designed for secondary students. (SD)

1646 ED 116 925
Metrics in Education - Resource Materials.
New York State Education Dept., Albany. Div. of Curriculum Development.; Western Michigan Univ., Kalamazoo. Center for Metric Education.
Spons Agency—Bureau of Adult, Vocational, and Technical Education (DHEW/OE), Washington, D.C.
Bureau No.—V257006
Pub Date—[75]
Grant—OEG-0-72-1868
Note—59p.
Pub Type— Guides - General (050)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—*Charts, Instructional Materials, Mathematics Materials, Measurement, *Metric System, *Postsecondary Education, *Resource Materials, Secondary Education, *Secondary School Mathematics, Technical Mathematics

This publication contains materials suitable for reproduction as transparencies or as classroom handouts. These metric materials may be used in a variety of occupational and practical arts courses. The format of the materials is in large print, some with humorous drawing; details of drawings and charts are easy to read. Introductory pages deal with all units of metric measures but the primary emphasis is upon linear uses of metric measures. Specific topics include: reading a metric micrometer and a vernier caliper, tables of metric hardware sizes, diagrams of metric hardware (nuts, bolts, screws, wrenches, etc.), master dimensioning, dual dimensioning, conversion tables, metric sizes of softwood, orthographic projection comparisons (first and third angle), paper sizes and weights, and printer's units. (JBW)

1647 ED 115 494
Leffin, Walter W.
Going Metric: Guidelines for the Mathematics Teacher, Grades K-8.
National Council of Teachers of Mathematics, Inc., Reston, Va.
Pub Date—75
Note—51p.
Available from—National Council of Teachers of Mathematics, Inc., 1906 Association Drive, Reston, Virginia 22091 ($1.50, discounts on quantity orders)
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Elementary School Mathematics, Elementary Secondary Education, *Guidelines, Instructional Materials, Learning Activities, *Mathematics Education, Measurement, *Metric System, *Resource Materials, Secondary School Mathematics, *Teaching Guides

This booklet gives a brief history of the metric system up to the present time. A detailed explanation of the international system of units (SI units) for length, area, volume, mass, temperature, and time is included. Also included are five check-up tests with answers for the measures of length, area, volume, and weight, as well as tables of all metric prefixes and of practical units for commerce and trade. A third section contains general guidelines for teaching the metric system with specific directions for spelling, punctuation, and use of metric symbols. The fourth section contains classroom activities, lists of recommended materials, and instructions for student-made learning aids. (JBW)

1648 ED 115 488
Bitter, Gary G. Geer, Charles
Materials for Metric Instruction. Mathematics Education Reports.
ERIC Information Analysis Center for Science, Mathematics, and Environmental Education, Columbus, Ohio.
Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Pub Date—Aug 75
Note—85p.
Available from—Ohio State University, Center for Science and Mathematics Education, 244 Arps Hall, Columbus, Ohio 43210 ($2.00)
Pub Type— Reference Materials - Bibliographies (131)
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—*Audiovisual Aids, *Bibliographies, Citations (References), Elementary School Mathematics, Elementary Secondary Education, Films, Filmstrips, Instructional Materials, *Mathematics Education, Mathematics Materials, Measurement, *Metric System, *Resource Materials, Secondary School Mathematics, Slides

This compilation lists available metric kits (41 listings), task cards (8 listings), films (24 listings), filmstrips (36 listings), slides (4 listings), and other miscellaneous metric materials (13 listings). The bibliography is intended as a quick reference or source of information for supplementary metric materials. For each entry the source, cost, level of learning, and a brief description are included. No product judgments are made, and inclusion on the list does not imply endorsement of the product. (JBW)

1649 ED 115 482
Prigge, Glenn, Ed.
Metric Measurement.
North Dakota Univ., Grand Forks. Dept. of Mathematics.
Pub Date—75
Note—101p.
Pub Type— Guides - General (050)
EDRS Price - MF01/PC05 Plus Postage
Descriptors—*Elementary School Mathematics, Instruction, Mathematics Materials, *Measurement, *Metric System, *Resource Materials, *Secondary School Mathematics, Teacher Developed Materials

This resource book of metric lessons was prepared by the Metric Systems Class at the University of North Dakota. Length, area, volume and capacity, mass and weight and temperature are developed through techniques such as puzzles, manipulative devices, and experiments. Activities are described in terms of materials needed, directions, and follow-up questions and/or activities. There is a wide variety of useful metric activities for each measurement concept. (JBW)

1650 ED 113 166
Measurement with Metric. A Resource Handbook. Field Test Version.
Oregon State Dept. of Education, Salem.
Pub Date—75
Note—48p.; occasional marginal legibility
Available from—Documents Clerk, Oregon Department of Education, 942 Lancaster Drive, N.E., Salem, Oregon 97310
Pub Type— Guides - General (050)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Experiential Learning, Higher Education, Instructional Materials, Laboratory Procedures, *Mathematics Education, *Measurement, *Metric System, State Departments of Education, *Teacher Education, Teaching Guides, *Teaching Methods

This handbook, prepared in field-test version, is intended to provide in-service teachers with "guidance in the development of the basic concepts of measurement." The basic assumption on which this guidance is based is that "hands-on" experience is the most appropriate method of teaching metric measurement. An additional premise is that students should learn to think in the metric system, and not to convert from the English to the metric system. The handbook is divided into five sections. After the rationale for teaching the metric system is presented in part one, a variety of activities for teachers' use in developing pre-measurement and measurement skills is described in part two. Section three is designed to aid in the planning and conducting of metric workshops, and section four, on implementation, describes materials needed. A glossary of terms and a bibliography comprise section five. (SD)

1651 ED 102 020
A Guide to Teaching the Metric System.
Pennsylvania State Dept. of Education, Harrisburg. Bureau of Curriculum Services.
Report No.—Bull-1
Pub Date—74
Note—21p.
Pub Type— Guides - General (050)
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Behavioral Objectives, Curriculum, Elementary Secondary Education, Instruction, *Instructional Materials, Learning Activities, *Mathematics Education, *Measurement, *Metric System, *Teaching Guides, Teaching Methods, Units of Study

This publication is intended to serve as a guide for teachers introducing the metric system to elementary and secondary school students. Suggestions are based upon the premise that students learn best when totally involved in activities using the metric system, with few comparisons to our traditional English system of measurement. The booklet includes: a statement of the need for metric instruction, a summary of metric terminology, a list of advantages of the metric system, a set of relevant behavioral objectives, and some specific teaching suggestions. References and a list of addresses from which to obtain additional metric teaching materials are included. (CR)

1652 ED 096 129
Sisk, Diane
Liter - Metric Volume.
Delaware State Dept. of Public Instruction, Dover.; Del Mod System, Dover, Del.
Spons Agency—National Science Foundation, Washington, D.C.
Report No.—NSF-GW-6703
Pub Date—30 Jun 73
Note—8p.
Pub Type— Guides - General (050)
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Behavioral Objectives, *General Science, Instruction, *Instructional Materials, *Measurement, Metric System, *Middle Schools, *Programed Instruction, Science Education, Secondary School Science, Teacher Developed Materials, Units of Study
Identifiers—*Del Mod System

This autoinstructional program, developed as part of a general science course, is offered for students in the middle schools. Mathematics of fractions and decimals is considered to be prerequisite knowledge. The behavioral objectives are directed toward mastery of determining volumes of solid objects using the water displacement method as well as by using measurements made with a metric ruler. The equipment needed is listed. Time allotment is 12 minutes. A bibliography is included with the student script. (EB)

1653 ED 096 128
Sisk, Diane
Mass - Metric Weight.
Delaware State Dept. of Public Instruction, Dover.; Del Mod System, Dover, Del.
Spons Agency—National Science Foundation, Washington, D.C.
Report No.—NSF-GW-6703
Pub Date—30 Jun 73
Note—15p.
Pub Type— Guides - General (050)
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Behavioral Objectives, *General Science, Instruction, *Instructional Materials, *Measurement, Metric System, *Middle Schools, *Programed Instruction, Science Education, Secondary School Science, Teacher Developed Materials, Units of Study
Identifiers—*Del Mod System

This autoinstructional program, developed for high, medium and low level achievers, is directed toward a course in general science in middle schools. Mathematics of fractions and decimals is described as a prerequisite to the use of the packet. Two behavioral objectives are listed. Both involve the students' determining mass, first to the nearest tenth of a gram and a second, to the nearest one-tenth of a gram, using liquids and gases. The equipment needed is listed. A student guide, a vocabulary list and a copy of an evaluation exercise, with instructions and answers, are prepared for the teacher. (EB)

1654 ED 096 126

Metric System.

Delaware State Dept. of Public Instruction, Dover.; Del Mod System, Dover, Del.

Spons Agency—National Science Foundation, Washington, D.C.

Report No.—NSF-GW-6703

Pub Date—30 Jun 73

Note—8p.

Pub Type— Guides - General (050)

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—*General Science, *Measurement, Metric System, *Middle Schools, *Programed Instruction, Science Education, *Secondary School Science, Teacher Developed Materials, Units of Study

Identifiers—*Del Mod System

This autoinstructional unit deals with the identification of units of measure in the metric system and the construction of relevant conversion tables. Students in middle school or in grade ten, taking a General Science course, can handle this learning activity. It is recommended that high, middle or low level achievers can use the program. Eighteen minutes is the suggested time needed. Three behavioral objectives are given and the equipment and materials needed to help the students achieve the objectives are listed. A student guide and a vocabulary list are also included in the packet. (EB)

1655 ED 093 723

Higgins, Jon L., Ed.

A Metric Handbook for Teachers.

National Council of Teachers of Mathematics, Inc., Washington, D.C.

Pub Date—74

Note—132p.

Available from—The National Council of Teachers of Mathematics, 1906 Association Drive, Reston, Virginia 22091 ($2.40)

Pub Type— Guides - General (050)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Curriculum, Elementary School Mathematics, Experiential Learning, *Instruction, *Instructional Materials, Learning Activities, *Mathematics Education, *Measurement, *Metric System, Secondary School Mathematics, Teaching Methods

This handbook has been compiled to provide a reference for teachers at all levels who are implementing the metric system in their classroom. It includes practical suggestions and recommendations for teaching the metric system, as well as papers identifying and discussing the fundamental mathematical and psychological issues underlying the teaching of the metric system in the schools. The articles–some reprinted from recent issues of the "Arithmetic Teacher," some written especially for this publication–are organized under five headings: Introducing the Metric System; Teaching the Metric System: Activities; Teaching the Metric System: Guidelines; Looking at the Measurement Process; and Metrication, Measure, and Mathematics. (Editor/DT)

1656 ED 090 027

Brief History of Measurement Systems with a Chart of the Modernized Metric System.

National Bureau of Standards (DOC), Washington, D.C.

Report No.—NBS-SP-304A

Pub Date—Oct 72

Note—4p.

Available from—Superintendent of Documents, Government Printing Office, Washington, D.C. 20402 (Stock No. 0303-01073, $0.25)

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—Federal Legislation, Government Publications, *History, International Organizations, Mathematics Education, *Measurement, *Metric System, *Standards, Temperature, Weight

A short discussion of the need for measurement and the development of ancient measurement systems is given. The English system is traced through its transitions. An account of the development of the metric system is presented from the original defining of the standards through to the recent general conferences on its revision and simplification. A chart of "The International System of Units" (the modern metric system) is given which explains the seven base units. (LS)

1657 ED 086 551

Negus, LeRoy

Let's Use the Metric System: A Supplement to Mathematics K-6.

New York State Education Dept., Albany. Bureau of Elementary Curriculum Development.

Pub Date—73

Note—15p.

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—*Curriculum, *Elementary School Mathematics, Guides, Instruction, Instructional Materials, Learning Activities, *Measurement, *Metric System, Objectives, *Teaching Methods

This bulletin provides elementary school teachers with some information about the metric system and some suggestions for teaching it. A history of the development of the system is given followed by a grade by grade guide to objectives and activities to be used with lessons on measurement with the metric system. The activities stress the decimal character of the metric system and provide opportunities for the students to gain an intuitive feeling for the comparative size of the various units of measure. (JP)

1658 ED 085 251

Metric Exercises. Lively Activities on Length, Weight, Volume, and Temperature.

National Science Teachers Association, Washington, D.C.

Pub Date—73

Note—35p.; Metric ruler, thermometer, and centimeter cube not available from EDRS

Available from—National Science Teachers Association, 1201 Sixteenth Street, N.W., Washington, D.C. 20036 (Stock No. 471-14664, $6.00)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—*Activity Units, Elementary School Mathematics, *Instructional Materials, Manipulative Materials, *Mathematics Education, Measurement, *Metric System, *Science Education, Secondary School Mathematics, Worksheets

This booklet of exercises and activities to help students learn the fundamentals of the metric system is designed for elementary, junior high school and senior high school students. It is organized under four topics (Length, Weight, Volume, and Putting it All Together Activities) and comes packaged with an ungraded thermometer, metric rulers, and a 1-gram centimeter cube. The activities and exercises can be simplified or extended to meet the needs of the class or individual students. An answer key is included as the final section. (JP)

1659 ED 069 524

Cox, Philip L.

Exploring Linear Measure, Teacher's Guide.

Oakland County Schools, Pontiac, Mich.

Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.

Pub Date—Oct 69

Grant—OEG-68-05635-0

Note—226p.; Revised Edition

EDRS Price - MF01/PC10 Plus Postage.

Descriptors—Curriculum, Instruction, *Instructional Materials, Low Ability Students, Mathematics Education, *Measurement, Metric System, Objectives, *Secondary School Mathematics, *Teaching Guides, Units of Study

Identifiers—Elementary Secondary Education Act Title III

This guide to accompany "Exploring Linear Measure," contains all of the student materials in SE 015 334 plus supplemental teacher materials. It includes a listing of terminal objectives, necessary equipment and teaching aids, and resource materials. Answers are given to all problems and suggestions and activities are presented for each section. Related documents are SE 015 334 and SE 015 336 through SE 015 347. This work was prepared under an ESEA Title III contract. (LS)

1660 ED 069 523

Cox, Philip L.

Exploring Linear Measure.

Oakland County Schools, Pontiac, Mich.

Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.

Pub Date—Oct 69

Grant—OEG-68-05635-0

Note—95p.; Revised Edition

EDRS Price - MF01/PC04 Plus Postage.

Descriptors—Curriculum, Instruction, *Instructional Materials, Low Ability Students, Mathematics Education, *Measurement, Metric System, Objectives, *Secondary School Mathematics, Units of Study, Worksheets

Identifiers—Elementary Secondary Education Act Title III

This material is an instructional unit on measuring and estimating. A variety of activities are used with manipulative devices, worksheets, and discussion questions included. Major topics are estimating lengths, accuracy of measurement, metric system, scale drawings, and conversion between different units. A teacher's guide is also available. Related documents are SE 015 335 - SE 015 347. This work was prepared under an ESEA Title III contract. (LS)

NUMBERS AND NUMERATION

1700 ED 183 411
Snyder, Pat
Prime Numbers. Topical Module for Use in a Mathematics Laboratory Setting.
Regional Center for Pre-Coll. Mathematics, Denver, Colo.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—74
Grant—NSF-GW-7720
Note—32p.; For related documents, see SE 030 304-322
Pub Type— Guides - Classroom - Learner (051) — Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Activities, Division, *Learning Laboratories, Mathematical Concepts, Mathematics Curriculum, *Mathematics Instruction, Multiplication, Number Concepts, *Prime Numbers, Secondary Education, *Secondary School Mathematics, Worksheets

The purpose of this module is to acquaint students with the terms prime, composite, and factor. This is done by offering a definition of each term, then reinforcing its meaning through activities. (Author/MK)

1701 ED 173 138
Junior High School Mathematics Units, Volume I, Number Systems. Commentary for Teachers.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—59
Note—186p.; For related documents, see SE 027 972-973; Contains occasional light and broken type
Pub Type— Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC08 Plus Postage.
Descriptors—Curriculum, *Curriculum Guides, Decimal Fractions, *Fractions, *Instruction, Junior High Schools, Mathematics Education, *Number Concepts, *Number Systems, Prime Numbers, Secondary Education, *Secondary School Mathematics
Identifiers—*School Mathematics Study Group

This is volume one of a three-volume set for teachers using SMSG junior high school text materials. Each unit contains a commentary on the text, answers to all the exercises, a copy of the questionnaire used for evaluating the material, and a summary of comments by the teachers using the text. Unit topics include: (1) numeration; (2) natural numbers and zero; (3) factoring and primes; (4) supplementary tests for divisibility and repeating decimals; (5) non-negative rational numbers; and (6) mathematical systems. (MP)

1702 ED 173 107
Junior High School Mathematics Units, Volume I, Number Systems.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—59
Note—143p.; For related documents, see SE 027 915-916; Contains occasional marginal legibility
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—Curriculum, Decimal Fractions, Fractions, *Instruction, Junior High Schools, Mathematics Education, *Number Concepts, *Number Systems, *Prime Numbers, Secondary Education, *Secondary School Mathematics, *Textbooks
Identifiers—*School Mathematics Study Group

This is volume one of a three-volume SMSG junior high school mathematics text. This volume contains units concerned with the structure of the number systems of arithmetic. Unit topics include: (1) numeration; (2) natural numbers and zero; (3) factoring and primes; (4) supplementary tests for divisibility and repeating decimals; (5) the non-negative rational numbers; and (6) mathematical systems. (MP)

1703 ED 146 002
Batra, Laj, Ed. And Others
Topics in Number Theory: The Number Game.
Institute for Services to Education, Inc., Washington, D.C.
Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Bureau No.—BR-7-0867
Pub Date—[70]
Contract—OEC-0-8-070867-0001
Note—61p.; Appendix material from ED 084 936; For related documents, see SE 019 970-974; Not available in hard copy due to marginal legibility of original document; Page 19 missing; Best Copy Available
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*College Mathematics, Curriculum, Higher Education, Instruction, *Instructional Materials, Mathematics, Mathematics Education, *Number Concepts, Secondary School Mathematics, *Teaching Guides
Identifiers—*Thirteen College Curriculum Program

This teacher's guide contains nine topics in number theory. Suggested questions for the teacher, short investigations, and possible exercises for the student are included. Chapter 1 is an introduction to sequences and series using geoboard activities involving triangular numbers, square numbers, rectangular numbers, and pentagonal numbers. The second chapter concerns prime numbers and generating prime numbers; included is a computer program in BASIC to find all prime numbers less than any given number. Chapter 3 concerns divisors, with geometrical interpretation of the greatest common factor. The next chapter is on congruence of numbers in modular arithmetic with exercises leading to divisibility tests. A team game with rules which can be used for reviewing number theory is presented followed by a chapter on Pythagorean systems. The final chapters of the guide present a brief description of linear diophantine equations. (JW)

1704 ED 143 553
Jones, Burton W., Ed.
Studies in Mathematics, Volume XIV. Introduction to Number Systems.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—66
Note—280p.; For related documents, see SE 023 028-041; Not available in hard copy due to marginal legibility of original document
Pub Type— Books (010)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Algebra, Arithmetic, *Instructional Materials, Junior High Schools, *Mathematics, *Number Systems, Secondary Education, *Secondary School Mathematics, *Teacher Education, *Teaching Guides, Textbooks
Identifiers—*School Mathematics Study Group

This text was written for junior high school teachers who wish to have more mathematical background on number systems. It is particularly useful for teachers who teach SMSG materials at grades 7 and 8. Chapters included are: (1) Introduction; (2) Numeration; (3) The Whole Numbers; (4) Divisibility and Properties of Whole Numbers; (5) The Non-Negative Numbers Rational; (6) Ratios, Decimals, and Applications; (7) Rational Numbers; (8) The Real Numbers; and (9) Equations and Graphs. The appendices include answers to problems and exercises and a selective bibliography. (RH)

1705 ED 143 548
Anderson, R. D., Ed. And Others
Studies in Mathematics, Volume VI. Number Systems. Preliminary Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—61
Note—454p.; For related documents, see SE 023 028-041
Pub Type— Books (010)
EDRS Price - MF01/PC19 Plus Postage.
Descriptors—Algebra, Arithmetic, Elementary Education, *Elementary School Mathematics, *Instructional Materials, *Mathematics, *Number Systems, *Teacher Education, *Teaching Guides, Textbooks
Identifiers—*School Mathematics Study Group

This volume was prepared by the School Mathematics Study Group (SMSG) to help elementary teachers develop a sufficient subject matter competence in the mathematics of the elementary school program. Background material for related SMSG materials for grades four through eight are included. Chapters in the book are: (1) What is Mathematics; (2) Numeration; (3) Whole Numbers; (4) Rational Number System; (5) Coordinates and Equations; and (6) Real Numbers. The appendices include additional materials related to the topics and answers to questions and problems in the text. (RH)

1706 ED 143 529
Allen, Frank B. And Others
Mathematics for High School. Intermediate Mathematics, Part 1, Supplementary Unit I. The Development of the Real Number System. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—60
Note—95p.
Pub Type— Books (010)
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—*Algebra, Arithmetic, *Instructional Materials, *Number Concepts, Secondary Education, *Secondary School Mathematics, Supplementary Reading Materials, *Textbooks
Identifiers—*School Mathematics Study Group

This is a supplementary unit to Mathematics for High School, Intermediate Mathematics, Part 1. In this publication, real numbers and rules for operating them are examined. The study begins by examining whole numbers and some of the properties of addition and multiplication of whole numbers. Most of the basic rules for algebra are developed from these properties. Included are background information, discussion of topics, exercises and student activities, and answers to exercises and activities. (RH)

1707 ED 143 524
Essays on Number Theory II.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—60
Note—77p.; For related document, see SE 023 001; Contains occasional light and broken type
Pub Type— Speeches/Meeting Papers (150)
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—Algebra, *Instructional Materials, *Number Concepts, Secondary Education, *Secondary School Mathematics
Identifiers—*School Mathematics Study Group

This supplement was written for students who are especially good in mathematics and who have a lively interest in the subject. It is suggested that the supplement be read with pencil and paper in hand. All questions should be considered and answered, if possible, when they occur. A casual reading of the supplement is, in most cases, unprofitable. For the most part, the units are independent of each other. Some of the sections in this publication relate to the chapters of the eleventh-grade material of SMSG Intermediate Mathematics. Included in this supplement are suggestions for use of the materials and eight chapters on arithmetic functions, the Euclidean algorithm and linear diophantine equations, the Gaussian integers, Fermat's Method of Infinite Descent, and approximation of irrationals by rationals. (RH)

1708 ED 143 523
Essays on Number Theory I.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—60
Note—3[illegible]p.; For related document, see SE 023 002
Pub Type— Speeches/Meeting Papers (150)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Algebra, *Instructional Materials, *Number Concepts, Secondary Education, *Secondary School Mathematics
Identifiers—*School Mathematics Study Group

Not all of mathematics can be taught in formal textbooks. Just as an English course can be enlivened by selections from literature, a mathematics course can gain depth and interest from special readings. This volume can be read in conjunction with the SMSG First Course in Algebra or Intermediate Mathematics. It introduces the subject of number theory. Included are selections on (1) prime numbers, (2) congruence, and (3) the fundamental theorem of arithmetic. A section containing answers to questions completes the publication. (Author/RH)

1709 ED 141 172

Rogers, Sandra

Laboratory Mathematics. Curriculum Booklet 6 - Number Theory.

Anderson County School District 2, Honea Path, S.C.

Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.

Pub Date—77

Note—27p.; For related documents, see SE 022 692-699; Not available in hard copy due to margi[illegible]gibility of original document

Pub Type— Guides - General (050)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Educationally Disadvantaged, *Elementary School Mathematics, Elementary Secondary Education, Experiential Learning, *Fundamental Concepts, Individualized Instruction, *Instructional Materials, Laboratory Procedures, *Low Achievement, Mathematics Education, *Numbers, *Units of Study, Worksheets

Identifiers—Elementary Secondary Education Act Title III

This booklet is one of a set of five booklets which comprise the basic curriculum for "Mathematics Laboratories for Disadvantaged Students," a nationally validated Title III ESEA project. This publication provides evaluation materials and student materials related to number theory. Topics included in this booklet are prime and composite numbers, odd and even numbers, integers, divisibility, and exponents. The project was designed for middle school students (Grades 5-8). (RH)

1710 ED 127 195

Adams, Patricia, Ed.

Numbers And Their Properties: MINNEMAST Coordinated Mathematics - Science Series, Unit 27.

Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—71

Note—155p.; For related documents, see SE021201-234; Photographs may not reproduce well; Contains small print in Worksheets

Available from—MINNEMAST, Minnemath Center, 720 Washington Ave., S.E., Minneapolis, MN 55414

Pub Type— Guides - General (050)

EDRS Price - MF01/PC07 Plus Postage.

Descriptors—*Curriculum Guides, Elementary Education, *Elementary School Mathematics, *Elementary School Science, Experimental Curriculum, *Interdisciplinary Approach, Learning Activities, Mathematics Education, *Multiplication, Number Systems, Primary Education, Process Education, Science Education, Units of Study

Identifiers—*MINNEMAST, *Minnesota Mathematics and Science Teaching Project

This volume is the twenty-seventh in a series of 29 coordinated MINNEMAST units in mathematics and science for kindergarten and the primary grades. Intended for use by third-grade teachers, this unit guide provides a summary and overview of the unit, a list of materials needed, and descriptions of four groups of lessons. The purposes and procedures for each activity are discussed. Examples of questions and discussion topics are given, and in several cases ditto masters, stories for reading aloud, and other instructional materials are included in the book. This unit reviews concepts related to multiplication which were introduced in earlier units, then expands these concepts to include multiplication by zero, the use of placeholders in multiplicative problems, multiplication of more than two factors, and the use of the vertical algorithm. Work with partitioning of arrays, using Cartesian products, and solving word problems is included. (SD)

1711 ED 127 188

Ihrig, Elizabeth A., Ed.

Using Larger Numbers: MINNEMAST Coordinated Mathematics - Science Series, Unit 20.

Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—71

Note—129p.; For related documents, see SE021201-234; Photographs may not reproduce well

Available from—MINNEMAST, Minnemath Center, 720 Washington Ave., S.E., Minneapolis, MN 55414

Pub Type— Guides - General (050)

EDRS Price - MF01/PC06 Plus Postage.

Descriptors—*Curriculum Guides, Elementary Education, *Elementary School Mathematics, *Elementary School Science, Experimental Curriculum, *Interdisciplinary Approach, Learning Activities, Mathematics Education, *Number Concepts, Primary Education, Process Education, Science Education, Units of Study

Identifiers—*MINNEMAST, *Minnesota Mathematics and Science Teaching Project

This volume is the twentieth in a series of 29 coordinated MINNEMAST units in mathematics and science for kindergarten and the primary grades. Intended for use by second-grade teachers, this unit guide provides a summary and overview of the unit, a list of materials needed, and descriptions of three groups of lessons and activities. The purposes and procedures for each activity are discussed. Examples of questions and discussion topics are given, and in several cases ditto masters, stories for reading aloud, and other instructional materials are included in the book. This unit begins with three computational games, and then provides a sequence of thirteen lessons aimed at building skill at addition and subtraction with large numbers. The final set of lessons is related to building a weather station. (SD)

1712 ED 127 184

Vogt, Elaine E., Ed.

Numbers and Measuring, Learning With TOR: MINNEMAST Coordinated Mathematics - Science Series, Unit 16.

Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—71

Note—159p.; For related documents, see SE021201-234; Photographs may not reproduce well

Available from—MINNEMAST, Minnemath Center, 720 Washington Ave., S.E., Minneapolis, MN 55414

Pub Type— Guides - General (050)

EDRS Price - MF01/PC07 Plus Postage.

Descriptors—*Curriculum Guides, Elementary Education, *Elementary School Mathematics, *Elementary School Science, Experimental Curriculum, Interdisciplinary Approach, Learning Activities, Mathematics Education, *Measurement, Number Concepts, *Number Systems, Primary Education, Process Education, Science Education, Units of Study

Identifiers—*MINNEMAST, *Minnesota Mathematics and Science Teaching Project

This volume is the sixteenth in a series of 29 coordinated MINNEMAST units in mathematics and science for kindergarten and the primary grades. Intended for use by second-grade teachers, this unit guide provides a summary and overview of the unit, a list of materials needed, and descriptions of five groups of lessons. The purposes and procedures for each activity are discussed. Examples of questions and discussion topics are given, and in several cases ditto masters, stories for reading aloud, and other instructional materials are included in the book. This unit begins with a review of ordering concepts and then introduces linear measurement to the nearest half inch, measuring and adding fractional units, and measuring diameters and circumferences. Fourteen lessons are devoted to systems of numeration and place value. The measurement of weight, an introduction to negative numbers, and our monetary system are the subjects of other lesson sequences. (SD)

1713 ED 127 177

Blair, Kay W. Thomson, Polly V.

Numbers and Counting: MINNEMAST Coordinated Mathematics - Science Series, Unit 9.

Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—71

Note—123p.; For related documents, see SE021201-234

Available from—MINNEMAST, Minnemath Center, 720 Washington Ave., S.E., Minneapolis, MN 55414

Pub Type— Guides - General (050)

EDRS Price - MF01/PC05 Plus Postage.

Descriptors—*Curriculum Guides, Elementary Education, *Elementary School Mathematics, *Elementary School Science, Experimental Curriculum, *Interdisciplinary Approach, Learning Activities, Mathematics Education, *Number Concepts, Primary Education, Process Education, Science Education, Units of Study

Identifiers—*MINNEMAST, *Minnesota Mathematics and Science Teaching Project

This volume is the ninth in a series of 29 coordinated MINNEMAST units in mathematics and science for kindergarten and the primary grades. Intended for use by first-grade teachers, this unit guide provides a summary and overview of the unit, a list of materials needed, and descriptions of four groups of lessons. The purposes and procedures for each activity are discussed. Examples of questions and discussion topics are given, and in several cases ditto masters, stories for reading aloud, and other instructional materials are included in the book. The lessons in this volume are organized into four sections: (1) one-to-one correspondence, (2) tallying, counting, and reading numerals from 0 to 20, (3) writing numerals and counting practice, and (4) ordering and the order-signs. A variety of topics related to these threads is included; among these are estimation of large numbers and names for numbers in other languages. (SD)

1714 ED 127 174

Dyrud, Grace H. Page, Laura M.

Numeration: MINNEMAST Coordinated Mathematics - Science Series, Unit 6.

Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—71

Note—113p.; For related documents, see SE021201-234

Available from—MINNEMAST, Minnemath Center, 720 Washington Ave., S.E., Minneapolis, MN 55414

Pub Type— Guides - General (050)

EDRS Price - MF01/PC05 Plus Postage.

Descriptors—*Curriculum Guides, Elementary Education, *Elementary School Mathematics, *Elementary School Science, Experimental Curriculum, *Interdisciplinary Approach, Learning Activities, Mathematics Education, *Number Concepts, Primary Education, Process Education, Science Education, Units of Study

Identifiers—*MINNEMAST, *Minnesota Mathematics and Science Teaching Project

This volume is the sixth in a series of 29 coordinated MINNEMAST units in mathematics and science for kindergarten and the primary grades. Intended for use by kindergarten teachers, this unit guide provides a summary and overview of the unit, a list of materials needed, and descriptions of five groups of activities. The purposes and procedures for each activity are discussed. Examples of questions and discussion topics are given, and in several cases ditto masters, stories for reading aloud, and other instructional materials are included in the book. The five sets of lessons in this volume review the idea of correspondence between sets, and introduce counting and numeration by tallying and with numeral symbols. An optional section concerns the values of coins. (SD)

1715 ED 123 081

Cosler, Norma, Ed.

Individualized Math Problems in Square Root. Oregon Vo-Tech Mathematics Problem Sets.

Oregon Math Education Council, Salem.; Oregon State Dept. of Education, Salem. Career and Vocational Education Section.

Pub Date—74

Note—17p.; For related documents, see SE 020

628-648

Available from—Continuing Education Publications, P.O. Box 1491, Portland, Oregon 97207

Pub Type— Guides - General (050)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—*Algebra, Geometry, Individualized Instruction, *Instructional Materials, Mathematical Applications, Mathematics Education, Number Concepts, *Problem Sets, Secondary Education, *Secondary School Mathematics, *Vocational Education

Identifiers—*Oregon Vo Tech Math Project, *Square Roots

This is one of eighteen sets of individualized mathematics problems developed by the Oregon Vo-Tech Math Project. Each of these problem packages is organized around a mathematical topic and contains problems related to diverse vocations. Solutions are provided for all problems. Problems in this volume require the computation of square roots, primarily in the context of using the Pythagorean Theorem. Problems are drawn from the vocational areas of electronics, industrial, electrical, and hydraulics technology, forestry, auto mechanics, and construction. (SD)

1716 ED 123 074

Casler, Norma, Ed.

Individualized Math Problems in Logarithms. Oregon Vo-Tech Mathematics Problem Sets.

Oregon Math Education Council, Salem.; Oregon State Dept. of Education, Salem. Career and Vocational Education Section.

Pub Date—74

Note—39p.; For related documents, see SE 020 628-648

Available from—Continuing Education Publications, P.O. Box 1491, Portalnd, Oregon 97207

Pub Type— Guides - General (050)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—*Algebra, Individualized Instruction, *Instructional Materials, Mathematical Applications, Mathematics Education, *Problem Sets, Secondary Education, *Secondary School Mathematics, Trigonometry, *Vocational Education

Identifiers—*Logarithms, *Oregon Vo Tech Math Project

THis is one of eighteen sets of individualized mathematics problems developed by the Oregon Vo-Tech Math Project. Each of these problem packages is organized around a mathematical topic and contains problems related to diverse vocations. Solutions are provided for all problems. This volume includes problems involving logarithms, exponents, and logarithms of trigonometric functions. The problems are drawn from the vocational areas of drafting, forest products, forestry, electronics, clerical work, marketing, and agriculture. (SD)

1717 ED 123 073

Casler, Norma, Ed.

Individualized Math Problems in Integers. Oregon Vo-Tech Mathematics Problem Sets.

Oregon Math Education Council, Salem.; Oregon State Dept. of Education, Salem. Career and Vocational Education Section.

Pub Date—74

Note—18p.; For related documents, see SE 020 628-648

Available from—Continuing Education Publications, P.O. Box 1491, Portland, Oregon 97207

Pub Type— Guides - General (050)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Individualized Instruction, *Instructional Materials, *Integers, Mathematical Applications, Mathematics Education, Number Systems, *Problem Sets, Secondary Education, *Secondary School Mathematics, *Vocational Education

Identifiers—*Oregon Vo Tech Math Project

This is one of eighteen sets of individualized mathematics problems developed by the Oregon Vo-Tech Math Project. Each of these problem packages is organized around a mathematical topic and contains problems related to diverse vocations. Solutions are provided for all problems. This volume presents problems involving operations with positive and negative integers. The problems are drawn from the vocational areas of clerical work, aviation mechanics, and forestry. (SD)

1718 ED 114 390

Bernard, Donald And Others

Number Patterns and Systems. Learning Activity Module IV.

Florida Univ., Gainesville. Coll. of Education.

Spons Agency—Office of Education (DHEW), Washington, D.C. Teacher Corps.

Note—18p.

Pub Type— Guides - General (050)

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—Elementary Education, Elementary School Mathematics, *Inservice Teacher Education, *Learning Modules, Mathematical Concepts, *Mathematics, *Mathematics Education, *Modern Mathematics, *Teacher Education

This learning module is designed to enable teachers to help children further develop their concepts of the meaning of numbers in our number system (including concepts of quanity, one-to-one correspondence, number order, before-after, greater than-equal to-less than, number patterns, and the structure of our number system). The module contains a rationale, general objectives, specific objectives, and a list of materials and equipment. There is also a list of general instructions for the teacher or student teacher. The procedures for using the module include a pre-test, a video tape, reading, studying games, several optional activities, and a post-test. A copy of the pre-test and its answer sheet, along with a copy of the post-test and answer sheet, are included. The module also contains games with tri-dominoes. A list of suggested readings and a bibliography complete the module. (RC)

1719 ED 113 190

Suggestions for Teaching Mathematics Using Laboratory Approaches Grades 1-6. 1. Number and Numeration. Experimental Edition.

New York State Education Dept., Albany. Bureau of Elementary Curriculum Development.

Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C. Div. of Compensatory Education.

Pub Date—74

Note—28p.; Related documents are SE 019 741-743

Pub Type— Guides - General (050)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Elementary Education, *Elementary School Mathematics, Guides, Instructional Materials, *Laboratory Manuals, *Manipulative Materials, Material Development, Mathematics Materials, *Number Concepts, Numbers, Teacher Developed Materials, *Teaching Guides

Identifiers—Elementary Secondary Education Act Title I

This guide describes activities and materials which can be used in a mathematics laboratory approach for a basic mathematics program for grades 1-6. Forty-seven activities, concerning number and numeration, are described by their purpose, suggested grade levels, materials needed, and procedures. Concepts presented include: counting, number recognition, sets, measurement, estimation, place value, addition, subtraction, multiplication and division facts, prime and composite numbers, mathematical vocabulary, applications, weighing, and monetary values. The booklet contains a list of manipulative materials for mathematics laboratory use, including improvised materials and games, commercial materials and games, general supplies, and storage containers. (JBW)

1720 ED 094 990

Pedoe, Daniel Pedoe, Mary

Mathematics for the Elementary School, Unit 11, Numeration.

Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—65

Note—136p.

Pub Type— Guides - General (050)

EDRS Price - MF01/PC06 Plus Postage.

Descriptors—Addition, Curriculum, *Elementary School Mathematics, Experiential Learning, *Inequalities, Instructional Materials, Number Concepts, *Number Systems, Subtraction, *Teaching Guides, Units of Study, Whole Numbers, Worksheets

Identifiers—MINNEMAST, *Minnesota Mathematics and Science Teaching Project, Number Line, Properties (Mathematics)

The Minnesota School Mathematics and Science Teaching (MINNEMAST) Project is characterized by its emphasis on the coordination of mathematics and science in the elementary school curriculum. Units are planned to provide children with activities in which they learn various concepts from both subject areas. Each subject is used to support and reinforce the other where appropriate, with common techniques and concepts being sought and exploited. Content is presented in story fashion. The stories serve to introduce concepts and lead to activities. Imbedded in the pictures that accompany the stories are examples of the concepts presented. This unit stresses the geometric interpretation of number on the number line. The notions of "greater than," "less than" and "between" are presented (or reviewed) by reference to the number line. Egyptian and Roman numeration systems are explored and an intuitive presentation of non-decimal systems is contained in some of the activities. Worksheets and commentaries to the teacher are provided and additional activities are suggested. (JP)

1721 ED 094 989

Gallion, Z. T., Ed. Myers, Donald E., Ed.

Mathematics for the Elementary School, Unit 8, Number Line.

Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—65

Note—109p.

Pub Type— Guides - General (050)

EDRS Price - MF01/PC05 Plus Postage.

Descriptors—*Addition, Curriculum, *Elementary School Mathematics, Experiential Learning, Instruction, *Instructional Materials, Number Concepts, *Subtraction, *Teaching Guides, Units of Study, Whole Numbers, Worksheets

Identifiers—Minnemast, *Minnesota Mathematics and Science Teaching Project, Number Line, Number Operations, Properties (Mathematics)

The Minnesota School Mathematics and Science Teaching (MINNEMAST) Project is characterized by its emphasis on the coordination of mathematics and science in the elementary school curriculum. Units are planned to provide children with activities in which they learn various concepts from both subject areas. Each subject is used to support and reinforce the other where appropriate, with common techniques and concepts being sought and exploited. Content is presented in story fashion. The stories serve to introduce concepts and lead to activities. Imbedded in the pictures that accompany the stories are examples of the concepts presented. This unit presents to the child the "core" of the program in that most of the topics preceding this one are background material. The operation of addition is presented as an operation on the number line. The content covers inequality (greater than), commutativity, even and odd numbers and introduces the operation of subtraction. Worksheets and commentaries to the teacher are provided and additional activities are suggested. (JP)

1722 ED 094 988

Gallion, Z. T., Ed. And Others

Mathematics for the Elementary School, Unit 7, Introduction to the Number Line.

Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—65

Note—52p.

Pub Type— Guides - General (050)

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—Curriculum, *Elementary School Mathematics, Experiential Learning, *Geometric Concepts, Instruction, *Instructional Materials, Number Concepts, *Set Theory, *Teaching Guides, Units of Study, Worksheets

Identifiers—MINNEMAST, *Minnesota Mathematics and Science Teaching Project

The Minnesota School Mathematics and Science Teaching (MINNEMAST) Project is characterized by its emphasis on the coordination of mathematics and science in the elementary school curriculum. Units are planned to provide children with activities in which they learn various concepts from both subject areas. Each subject is used to support and reinforce the other where appropriate, with common techniques and concepts being sought and exploited. Content is presented in story fashion. The stories serve to introduce concepts and lead to activities. Imbedded in the pictures that accompany the stories are examples of the concepts presented.

This unit is designed to provide an adequate background for the presentation of the number line in the next unit. Elementary geometric concepts are presented (or reviewed) such as point, line, etc. Intersection is treated in order to establish the concept that "the interpretation of addition as union" is predicated on the presence of disjoint sets. Worksheets and commentaries to the teacher are provided and additional activities are suggested. (JP)

1723 ED 094 985
Powell, Bonnie, Ed. And Others
Mathematics for the Elementary School, Unit 4, Sets, Numbers, Numerals.
Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—65
Note—181p.
Pub Type— Guides - General (050)
EDRS Price - MF01/PC08 Plus Postage.
Descriptors—Curriculum, *Elementary School Mathematics, Experiential Learning, Instruction, *Instructional Materials, *Number Concepts, Numbers, *Set Theory, *Teaching Guides, Worksheets
Identifiers—MINNEMAST, *Minnesota Mathematics and Science Teaching Project

The Minnesota School Mathematics and Science Teaching (MINNEMAST) Project is characterized by its emphasis on the coordination of mathematics and science in the elementary school curriculum. Units are planned to provide children with activities in which they learn various concepts from both subject areas. Each subject is used to support and reinforce the other where appropriate, with common techniques and concepts being sought and exploited. Content is presented in story fashion. The stories serve to introduce concepts and lead to activities. Imbedded in the pictures that accompany the stories are examples of the concepts presented. This booklet contains a unit on numbers and set concepts. The topics include representing numbers by constructing or describing equivalent sets, using words to represent numbers and using special written symbols to represent numbers. Some of the activities are designed for using the "Minnebars," in which the length of a bar represents a number. Although the formal introduction of addition does not occur until Unit 7, the Minnebar activities serve as pre-addition exercises. Union and intersection of sets are also introduced in this unit. Worksheets and commentaries to the teacher are provided and additional activities are suggested. (JP)

1724 ED 094 983
Powell, Bonnie, Ed. And Others
Mathematics for the Elementary School, Unit 2, Sets.
Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—65
Note—100p.
Pub Type— Guides - General (050)
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—*Curriculum, *Elementary School Mathematics, Experiential Learning, Instruction, *Instructional Materials, Number Concepts, *Set Theory, *Teaching Guides, Worksheets
Identifiers—MINNEMAST, *Minnesota Mathematics and Science Teaching Project

The Minnesota School Mathematics and Science Teaching (MINNEMAST) Project is characterized by its emphasis on the coordination of mathematics and science in the elementary school curriculum. Units are planned to provide children with activities in which they learn various concepts from both subject areas. Each subject is used to support and reinforce the other where appropriate, with common techniques and concepts being sought and exploited. Content is presented in story fashion. The stories serve to introduce concepts and lead to activities. Imbedded in the pictures that accompany the stories are examples of the concepts presented. This booklet presents a unit on sets. The topics covered are set membership, conservation of sets, the empty set, 1-to-1 correspondence, matching sets, and the concept of subsets. Worksheets and commentaries to the teacher are provided and additional activities are suggested. (JP)

1725 ED 090 003
Thompson, Russ Fuller, Albert
Basic Math I, Package 01-04, Factoring, Prime Numbers and Divisibility.
Arnold Public Schools, Nebr.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—72
Note—21p.; For related documents, see SE 017 553 through 555 and SE 017 557 through 575
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Grade 9, Individualized Instruction, *Instructional Materials, *Number Concepts, Objectives, Prime Numbers, *Secondary School Mathematics, *Teaching Guides, *Tests, Whole Numbers
Identifiers—Elementary Secondary Education Act Title III, *General Mathematics

This teacher guide is part of the materials prepared for an individualized program for ninth-grade algebra and basic mathematics students. Materials written for the program are to be used with audiovisual lessons recorded on tape cassettes. For an evaluation of the program, see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are included for each topic covered. The work for this package covers prime numbers, prime factorization, number multiples, least common multiple, and tests for divisibility. This work was prepared under an ESEA Title III contract. (JP)

1726 ED 090 000
Thompson, Russ Fuller, Albert
Basic Math I, Package 01-01, Numeration.
Arnold Public Schools, Nebr.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—72
Note—24p.; For related documents, see SE 017 554 through 575
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Grade 9, Individualized Instruction, *Instructional Materials, *Number Concepts, Numbers, Number Systems, Objectives, *Secondary School Mathematics, *Teaching Guides, *Tests
Identifiers—Elementary Secondary Education Act Title III, *General Mathematics, Place Value (Mathematics), Properties (Mathematics)

This teacher guide is part of the materials prepared for an individualized program for ninth-grade algebra and basic mathematics students. Materials written for the program are to be used with audiovisual lessons recorded on tape cassettes. For an evaluation of the program, see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are included for each topic covered. The work in this package deals with numeration and place value. This work was prepared under an ESEA Title III contract. (JP)

1727 ED 084 167
Blanford, Doris K. Thornton, James E., Jr.
Pure Mathematics I, Mathematics (Experimental): 5211.31.
Dade County Public Schools, Miami, Fla.
Pub Date—72
Note—28p.; An Authorized Course of Instruction for the Quinmester Program
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Behavioral Objectives, *Curriculum, Grade 7, Graphs, Instruction, Integers, Mathematics Education, *Number Concepts, *Objectives, Rational Numbers, *Secondary School Mathematics, Set Theory, *Teaching Guides, Tests
Identifiers—*Quinmester Program

This is the first in a series of three guidebooks on minimum course content for gifted grade seven students who will begin algebra in grade eight. The topics covered include integers, sets, number properties, open sentences, and graphing; concepts are stressed. Overall course goals are specified; a course outline, performance objectives, suggested teaching strategies and text references are listed. A pretest and a posttest are also included. (For the third booklet in the series, see ED 079 132.) (JP)

1728 ED 084 164
Gordon, Marjorie Wilson, Pamela
Mathematical Structures 1, Mathematics (Experimental): 5211.21
Dade County Public Schools, Miami, Fla.
Pub Date—72
Note—24p.; An Authorized Course of Instruction for the Quinmester Program
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Behavioral Objectives, *Curriculum, Fractions, Grade 7, Instruction, Mathematics Education, *Number Concepts, *Objectives, Prime Numbers, *Secondary School Mathematics, *Teaching Guides, Tests, Whole Numbers
Identifiers—*Quinmester Program

This is the first of two guidebooks for Grade 7 recommended to build fundamental concepts necessary for success in algebra. Topics covered include numeration systems, operations in non-decimal bases, whole numbers, factors and primes, and fractions. Goals for the course are stated, then, for each topic, performance objectives, a course outline, references, and suggested teaching strategies are provided. Posttest items are included, along with a list of twelve references. For the second guidebook in this series, see ED 067 293. (DT)

1729 ED 084 159
Beardsley, Leeh M.
Order in Number, Monograph No. 3.
Michigan Council of Teachers of Mathematics.
Pub Date—Oct 73
Note—42p.; Guidelines for Quality Mathematics Teaching
Available from—MCTM Publications Chairman, 2165 East Maple Road, Birmingham, Michigan 48008 ($1.00)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Curriculum, Educational Games, *Elementary School Mathematics, *Experiential Learning, Guidelines, *Instruction, Mathematics Education, *Number Concepts, Numbers, *Teaching Guides, Teaching Methods

This monograph attempts to provide the teacher with examples, techniques, and tips for developing order in number. Topics covered include pre-number order and classification; beginning number activities; number lines; the 100-square counting chart; ordering the integers; fractional numbers; and games, counting rhymes, and other activities. A vocabulary list, a resource list with names and addresses of suppliers, and a short bibliography are included. (DT)

1730 ED 079 132
Blanford, Doris K. Thornton, James E., Jr.
Pure Mathematics 3, Mathematics (Experimental): 5211.33.
Dade County Public Schools, Miami, Fla.
Pub Date—71
Note—21p.; An Authorized Course of Instruction for the Quinmester Program
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Behavioral Objectives, Curriculum, Instruction, Mathematics Education, *Number Concepts, *Objectives, *Secondary School Mathematics, *Teaching Guides, Tests
Identifiers—*Quinmester Program

This guidebook specifies minimum course content covering number systems and bases, rational numbers and operations with rationals, and solving simple open sentences. Course goals are stated, then performance objectives, a course outline, references, and suggested teaching strategies are listed for each topic covered. Posttest items and a list of 15 references are included. (DT)

1731 ED 069 522
Loomis, Challie
Cuisenaire Daily Calendar of a Primary One Teacher. How-I-Did-It.
University City School District, Mo.
Pub Date—Sep 65
Note—52p.
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—*Elementary School Mathematics, Experiential Learning, *Instruction, Instructional Materials, Laboratory Procedures, *Manipulative Materials, *Number Concepts, Symbols (Mathematics), Teaching Methods, Whole Numbers
Identifiers—*Cuisenaire Materials

A teacher's daily record of activities and strategies for teaching arithmetic to a class of first grade students exclusively through the use of Cuisenaire rods is described. Worksheets and the mid-term test are included. A short evaluation of the results of the instructional method concludes the paper. (DT)

1732 ED 069 504

Evans, Diane

Learning Activity Package, Algebra.

Ninety Six High School, S. C.

Pub Date—72

Note—314p.

EDRS Price - MF01/PC13 Plus Postage.

Descriptors—*Algebra, Analytic Geometry, *Curriculum, *Individualized Instruction, *Instructional Materials, Mathematics Education, Number Systems, Objectives, *Secondary School Mathematics, Set Theory, Teacher Developed Materials, Teaching Guides, Units of Study

A set of ten teacher-prepared Learning Activity Packages (LAPs) in beginning algebra and nine in intermediate algebra, these units cover sets, properties of operations, number systems, open expressions, solution sets of equations and inequalities in one and two variables, exponents, factoring and polynomials, relations and functions, radicals, rational expressions, coordinate geometry, quadratic equations and inequalities, quadratic functions, and systems of equations and inequalities. Each unit contains a rationale for the material; a list of behavioral objectives; a list of resources including texts (with reading assignments and problem sets specified), tape recordings, commercial games, filmstrips, and transparencies; a problem set for student self-evaluation; suggestions for advanced study; and references. For other documents in this series, see SE 015 193, SE 015 194, SE 015 196, and SE 015 197. (DT)

1733 ED 068 356

Diliberto, S. P. And Others

Pilot Study for a New Elementary and Junior High School Mathematics Program: Number Activities for the Kindergarten.

California Univ., Berkeley.

Spons Agency—National Center for Educational Research and Development (DHEW/OE), Washington, D.C.

Bureau No.—BR-8-1-042

Pub Date—Jun 70

Grant—OEG-9-8-081042-0114(010)

Note—20p.

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—*Class Activities, Disadvantaged Youth, *Educational Games, *Elementary School Mathematics, Experiential Learning, Instruction, *Instructional Materials, *Kindergarten, *Number Concepts

Number activities for use in kindergarten were developed in an attempt to reduce the deficit in numerical experience shown by culturally disadvantaged children upon entry into the first grade. Twelve activities are described with teaching suggestions included. The activities did not undergo formal evaluation. Recommendations are made that the materials be formally evaluated, that some of the activities be performed in pre-school programs, and that certain number-learning equipment be manufactured. (Author/DT)

1734 ED 067 292

Double-S Number Theory, Mathematics: 5211.09.

Dade County Public Schools, Miami, Fla.

Pub Date—71

Note—20p.; An Authorized Course of Instruction for the Quinmester Program

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—Behavioral Objectives, *Curriculum, Instruction, Mathematics Education, *Objectives, *Remedial Mathematics, *Secondary School Mathematics, *Teaching Guides, Tests

Identifiers—*Quinmester Program

This is the second of four guidebooks on developing computational skills using the "stretcher and shrinker" approach developed by UICSM. Approximation, inverses, equations, factoring, and rearrangement are covered. Overall goals for the course, performance objectives, teaching suggestions, and a suggested time schedule are included. Sixteen references for enrichment and practice activities are listed. For other booklets in this set, see SE 014 883 and SE 014 884. (DT)

1735 ED 067 285

Koven, Marcia

C P Structures 1, Mathematics: 5210.21.

Dade County Public Schools, Miami, Fla.

Pub Date—71

Note—16p.; An Authorized Course of Instruction for the Quinmester Program

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—Behavioral Objectives, *Curriculum, Instruction, Mathematics Education, *Number Concepts, *Objectives, *Secondary School Mathematics, *Teaching Guides

Identifiers—*Quinmester Program

This is the first of eight guidebooks for a course designed for the junior high student preparing for algebra. The booklet includes place value, expanded numerals, exponents, and elementary set theory. General goals and performance objectives, a course outline, and sample posttest items are given. (DT)

1736 ED 049 035

Experiences in Mathematical Discovery, Unit 9, Positive and Negative Numbers.

National Council of Teachers of Mathematics, Inc., Washington, D.C.

Pub Date—70

Note—63p.

Available from—National Council of Teachers of Mathematics, NEA Publications, 1201 16th St., N.W., Washington, D.C. 20036 ($1.00)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Algebra, *Discovery Learning, Grade 9, *Instructional Materials, *Integers, Modern Mathematics, *Number Concepts, Resource Materials, *Secondary School Mathematics

This is the ninth in a series of ten self-contained units designed for use by students in ninth grade general mathematics classes. This unit is divided into six sections dealing with different concepts involving positive and negative numbers. Some concepts presented include positive and negative integers, addition and subtraction, multiplication, absolute value, and rational numbers. Though the topics are standard they are dealt with in non-traditional methods emphasizing discovery learning. Many exercises, diagrams, and topics for discussion are included. (CT)

1737 ED 048 157

Don't Spare the Rods. A Supplementary Mathematics Program for Kindergartens.

University City School District, Mo.

Spons Agency—Office of Education (DHEW), Washington, D.C. Bureau of Research.

Bureau No.—BR-6-1328

Contract—OEC-3-7-061328-0322

Note—42p.

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—*Curriculum Guides, *Kindergarten, *Mathematics Curriculum

Identifiers—*Cuisenaire Materials

GRADES OR AGES: Kindergarten. SUBJECT MATTER: Using Cuisenaire rods. ORGANIZATION AND PHYSICAL APPEARANCE: The guide contains a short introductory section followed by a sequential series of 40 lessons. Diagrams are interspersed throughout the text. The guide is mimeographed and spiral bound with a soft cover. OBJECTIVES AND ACTIVITIES: The introductory section describes the objectives of using Cuisenaire rods. Each lesson contains a detailed sequence of activities with the rods designed to teach children number concepts and operations. INSTRUCTIONAL MATERIALS: A list of Cuisenaire rods kits available and prices is presented in the introductory section. A set of transparencies and a set of self-checking cards which can be used with the lessons are available from the Prekindergarten-Kindergarten Research Center. However, the lessons can be taught without the transparencies and cards. STUDENT ASSESSMENT: None. OPTIONS: No alternative activities are suggested. It is necessary to follow the lessons in sequence, but timing is left to the teacher. (RT)

1738 ED 048 148

Ogle, John W. Meek, Cleo M.

Mathematics Goals and Activities K-6. Part I: Sets and Numbers.

North Carolina State Dept. of Public Instruction, Raleigh. Div. of Mathematics.

Pub Date—70

Note—163p.

EDRS Price - MF01/PC07 Plus Postage.

Descriptors—*Curriculum Guides, Elementary School Curriculum, *Elementary School Mathematics, *Mathematics Curriculum, *Numbers, *Set Theory

GRADES OR AGES: K-6. SUBJECT MATTER: Mathematics; sets and numbers. ORGANIZATION AND PHYSICAL APPEARANCE: The guide is divided into two sections–sets and numbers. Within each section the content is grouped into six levels in order of increasing difficulty. Each level contains from 3 to 15 concepts. Numerous diagrams and illustrations are included. The guide is offset printed with a soft cover. OBJECTIVES AND ACTIVITIES: For each concept presented, there is a brief statement of content and one or more behavioral objectives. Suggested activities are then listed for that concept. Activities considered to be of more than ordinary difficulty are marked with an asterisk. INSTRUCTIONAL MATERIALS: Materials needed for an activity are mentioned in the activity description. STUDENT ASSESSMENT: Student assessment is carried out through completion of the behavioral objectives listed with each concept. OPTIONS: The guide is suggestive only. No mention is made of timing or means of incorporating the concepts described into the total curriculum. (RT)

1739 ED 033 848

Hatch, Mary Jacqueline

[Experimental Course in Elementary Number Theory, Cambridge Conference on School Mathematics Feasibility Study No. 35.]

Cambridge Conference on School Mathematics, Newton, Mass.

Pub Date—[69]

Note—173p.

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Addition, Arithmetic, Division, *Elementary School Mathematics, *Instruction, *Instructional Materials, Multiplication, *Number Concepts, Subtraction

Identifiers—Cambridge Conference on School Mathematics MA

In the winter of 1965, an experimental course in Elementary Number Theory was presented to a 6th grade class in the Hosmer School, Watertown, Massachusetts. Prior to the introduction of the present material, students had been exposed in class to such topics from the University of Illinois Arithmetic Project as lattices, number lines, frame equations, and linear affine transformations. The present materials are concerned with such mathematical concepts as (1) fundamental operations involving integers, (2) division of integers which included remainders, factorization, and the Sieve of Eratosthenes, and (3) number systems in bases 2, 7, 10, and 12. Teacher and student materials that were used for a period of 14 weeks are included. [Not available in hardcopy due to marginal legibility of original document.] (RP)

1740 ED 033 845

Lomon, Earle

Inequalities and Real Numbers as a Basis for School Mathematics, Cambridge Conference on School Mathematics Feasibility Study No. 38.

Cambridge Conference on School Mathematics, Newton, Mass.

Pub Date—[69]

Note—86p.

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Arithmetic, *Elementary School Mathematics, Grade 1, Grade 2, *Instruction, *Instructional Materials, Mathematical Concepts, Resource Materials

Identifiers—Cambridge Conference on School Mathematics MA

These materials were developed as a practical response to some of the recommendations of the 1963 Cambridge Conference on School Mathematics (CCSM). Experimental sessions are described in detail in this report. In the Estabrook Elementary School, Lexington, Massachusetts, first grade children (1964-65 Academic Year) concentrated on material related to the real number concept. Included are descriptions of teacher and student activities. The teacher used several wooden dowels of varying length in order to involve students in discussions of the symmetric and transitive properties of inequality. In addition, the more able second grade students were also exposed to concepts and definitions for inequality, addition and subtraction, and applications to problems. The inequalities unit was also used with a pre-first grade class at Morse Elementary School in Cambridge, Massachusetts. A description of this project is provided. [Not available in hardcopy due to marginal legibility of original document.] (RP)

1741 ED 033 027

Fitzgerald, B.

Inequality Lessons at Adams School, Lexington; Cambridge Conference on School Mathematics Feasibility Study No. 42.

Cambridge Conference on School Mathematics, Newton, Mass.

Pub Date—[69]

Note—69p.

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Arithmetic, *Curriculum Development, *Elementary School Mathematics, Grade 1, *Instruction, Mathematical Concepts

Identifiers—Adams School MA, Lexington, Massachusetts

These materials were written with the aim of reflecting the thinking of The Cambridge Conference on School Mathematics (CCSM) regarding the goals and objectives for school mathematics. Presented are plans for teaching 15 inequality lessons for above average first grade students. The discovery approach is utilized by the teacher in order to involve students in the classroom discussions. Ten wooden sticks of varying lengths and thicknesses were available for these inequality lessons and they were used by both teachers and students in experimental situations. Activities and comments by the teacher and the students are provided for each lesson. [Not available in hard copy due to marginal legibility of original document]. (RP)

1742 ED 022 953

Rahmlow, Harold F. And Others

Occupational Mathematics; Concepts of Number Bases. Report No. 16-U. Final Report.

Washington State Coordinating Council for Occupational Education, Olympia.; Washington State Univ., Pullman. Dept. of Education.

Spons Agency—Office of Education (DHEW), Washington, D.C.

Bureau No.—BR-7-0031

Grant—OEG-4-7-070031-1626

Note—129p.

EDRS Price - MF01/PC06 Plus Postage.

Descriptors—*Arithmetic, *Numbers, *Number Systems, *Programed Instructional Materials, *Textbooks, *Vocational Education

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should be able to: (1) change from exponential form to expanded form and vice versa, (2) write a number in the base 10 system in expanded exponential form, (3) write a number in the base two system in expanded exponential form, and (4) convert numbers from base two and base five to base 10. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975. (EM)

1743 ED 022 951

Rahmlow, Harold F. And Others

Occupational Mathematics; Scientific Notation. Report No. 16-S, Booklet II. Final Report.

Washington State Coordinating Council for Occupational Education, Olympia.; Washington State Univ., Pullman. Dept. of Education.

Spons Agency—Office of Education (DHEW), Washington, D.C.

Bureau No.—BR-7-0031

Pub Date—Jun 68

Grant—OEG-4-7-070031-1626

Note—99p.

EDRS Price - MF01/PC04 Plus Postage.

Descriptors—*Arithmetic, *Number Concepts, *Programed Instructional Materials, *Symbols (Mathematics), *Textbooks, *Vocational Education

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should know that a number X having an exponent n means that X is multiplied by itself n times and be able to perform addition, subtraction, multiplication, and division with numbers containing exponents, convert any number into standard scientific notation, convert a number from standard notation into standard decimal notation, and perform addition, subtraction, multiplication, and division using scientific notation. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975. (EM)

1744 ED 022 950

Rahmlow, Harold F. And Others

Occupational Mathematics; Scientific Notation. Report No. 16-S. Final Report.

Washington State Coordinating Council for Occupational Education, Olympia.; Washington State Univ., Pullman. Dept. of Education.

Spons Agency—Office of Education (DHEW), Washington, D.C.

Bureau No.—BR-7-0031

Pub Date—Jun 68

Grant—OEG-4-7-070031-1626

Note—123p.

EDRS Price - MF01/PC05 Plus Postage.

Descriptors—*Arithmetic, *Number Concepts, *Programed Instructional Materials, *Symbols (Mathematics), *Textbooks, *Vocational Education

This programed mathematics textbook (Volume I) is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should know that a number X having an exponent n means that X is multiplied by itself n times and be able to perform addition, subtraction, multiplication, and division with numbers containing exponents, convert any number into standard scientific notation, convert a number from standard notation into standard decimal notation, and perform addition, subtraction, multiplication, and division using scientific notation. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975. (EM)

1745 ED 022 949

Rahmlow, Harold F. And Others

Occupational Mathematics; Reciprocals. Report No. 16-R. Final Report.

Washington State Coordinating Council for Occupational Education, Olympia.; Washington State Univ., Pullman. Dept. of Education.

Spons Agency—Office of Education (DHEW), Washington, D.C.

Bureau No.—BR-7-0031

Pub Date—Jun 68

Grant—OEG-4-7-070031-1626

Note—110p.

EDRS Price - MF01/PC05 Plus Postage.

Descriptors—*Arithmetic, *Fractions, Fundamental Concepts, *Programed Instructional Materials, *Reciprocals (Mathematics), *Textbooks, *Vocational Education

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should be able to write the reciprocal of an integer or a fraction; add the reciprocals of integers; and solve the equation $1/Rt = 1/R1 + 1/R2 + 1/Rn$ for Rt. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975. (EM)

1746 ED 022 948

Rahmlow, Harold F. And Others

Occupational Mathematics; Commutative Law. Report No. 16-Q. Final Report.

Washington State Coordinating Council for Occupational Education, Olympia.; Washington State Univ., Pullman. Dept. of Education.

Spons Agency—Office of Education (DHEW), Washington, D.C.

Bureau No.—BR-7-0031

Pub Date—Jun 68

Grant—OEG-4-7-070031-1626

Note—73p.

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—*Arithmetic, *Fundamental Concepts, *Programed Instructional Materials, *Textbooks, *Vocational Education

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should be able to correctly use the commutative law of addition and multiplication and should know that it does not hold for subtraction and division. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975. (EM)

1747 ED 022 930

Rahmlow, Harold F. And Others

Occupational Mathematics; Representing Numbers by Letters. Report No. 16-B. Final Report.

Washington State Coordinating Council for Occupational Education, Olympia.; Washington State Univ., Pullman. Dept. of Education.

Spons Agency—Office of Education (DHEW), Washington, D.C.

Bureau No.—BR-7-0031

Pub Date—Jun 68

Grant—OEG-4-7-070031-1626

Note—52p.

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—*Arithmetic, *Fundamental Concepts, *Mathematical Concepts, *Programed Instructional Materials, *Textbooks, *Vocational Education

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should know that a letter can represent a number and that algebraic and arithmetic rules of operations apply to letters and numbers. He should be able to make correct numeric substitutions for general literal expressions and construct general formulas that represent simple relationships. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975. (EM)

1748 ED 022 929

Rahmlow, Harold F. And Others

Occupational Mathematics; Symbols. Report No. 16-A. Final Report.

Washington State Coordinating Council for Occupational Education, Olympia.; Washington State Univ., Pullman. Dept. of Education.

Spons Agency—Office of Education (DHEW), Washington, D.C.

Bureau No.—BR-7-0031

Pub Date—Jun 68

Grant—OEG-4-7-070031-1626

Note—95p.

EDRS Price - MF01/PC04 Plus Postage.

Descriptors—*Arithmetic, Division, *Fundamental Concepts, Multiplication, *Programed Instructional Materials, *Symbols (Mathematics), *Textbooks, *Vocational Education

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should be able to correctly use = and not = signs, symbols representing division such as a/b, and symbols representing multiplication as a x b, a . b, ab, a(b), and (a)(b). The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975. (EM)

1749 ED 021 730
Foley, Jack L.
Modulo Seven.
Pub Date—Aug 67
Note—16p.
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Addition, Arithmetic, Curriculum, *Curriculum Development, *Elementary School Mathematics, Instructional Materials, Low Ability Students, Mathematics, Multiplication, *Secondary School Mathematics, Subtraction
Identifiers—Elementary and Secondary Education Act Title III

This booklet, one of a series, has been developed for the project, A Program for Mathematically Underdeveloped Pupils. A project team, including inservice teachers, is being used to write and develop the materials for this program. The materials developed in this booklet include (1) addition, subtraction, and multiplication in modulo seven (related to the days of the week), (2) congruency and equivalence classes, and (3) some basic properties of whole numbers for the indicated operations in modulo seven. (RP)

1750 ED 021 729
Foley, Jack L.
Numeration Systems, Past and Present.
Pub Date—Aug 67
Note—26p.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Addition, Arithmetic, Curriculum, *Curriculum Development, *Elementary School Mathematics, Instructional Materials, Low Ability Students, Mathematics, Multiplication, *Secondary School Mathematics
Identifiers—Elementary and secondary Education Act Title III

This booklet, one of a series, has been developed for the project, A Program for Mathematically Underdeveloped Pupils. A project team, including inservice teachers, is being used to write and develop the materials for this program. The materials developed in this booklet include (1) systems of numeration from an historical point of view, (2) a problem of application in a different number base, and (3) addition and multiplication in base two and five. (RP)

1751 ED 021 727
Foley, Jack L.
Integers, Addition and Subtraction.
Pub Date—Sep 67
Note—23p.
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Addition, *Arithmetic, *Elementary School Mathematics, *Instructional Materials, Low Ability Students, *Mathematics, Subtraction
Identifiers—Elementary and Secondary Education Act Title III

This booklet, one of a series, has been developed for the project, A Program for Mathematically Underdeveloped Pupils. A project team, including inservice teachers, is being used to write and develop the materials for this program. The materials developed in this booklet include (1) the addition and subtraction of whole numbers on the number line, (2) the addition and subtraction of integers on the number line, and (3) the idea of inequality. Accompanying these booklets will be a "Teaching Strategy Booklet" which will include a description of teacher techniques, methods, suggested sequences, academic games, and suggested visual materials. (RP)

1752 ED 021 726
Foley, Jack L.
Number Sentences, Equations and Inequalities.
Pub Date—Aug 67
Note—35p.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Algebra, *Arithmetic, Curriculum, *Curriculum Development, Elementary School Mathematics, Instructional Materials, *Mathematics, *Secondary School Mathematics
Identifiers—Elementary and Secondary Education Act Title III

This booklet, one of a series, has been developed for the project, A Program for Mathematically Underdeveloped Pupils. A project team, including inservice teachers, is being used to write and develop the materials for this program. The materials developed in this booklet include (1) number expressions, (2) symbols and ideas, (3) open equations, (4) combining "like" terms, (5) writing equivalent equations, (6) inequalities, and (7) illustration of terms. (RP)

1753 ED [illegible]
FOLEY, JACK L.
IDEAS FROM NUMBER THEORY.
Pub Date—AUG67
Note—45P.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Arithmetic, Division, *Elementary School Mathematics, Extracurricular Activities, *Instructional Materials, Low Ability Students, *Mathematics, Multiplication, Set Theory
Identifiers—Elementary Secondary Education Act Title III

THIS BOOKLET, ONE OF A SERIES, HAS BEEN DEVELOPED FOR THE PROJECT, A PROGRAM FOR MATHEMATICALLY UNDERDEVELOPED PUPILS. A PROJECT TEAM, INCLUDING INSERVICE TEACHERS, IS BEING USED TO WRITE AND DEVELOP THE MATERIALS FOR THIS PROGRAM. THE MATERIALS DEVELOPED IN THIS BOOKLET INCLUDE ELEMENTARY IDEAS CONCERNING (1) WHOLE NUMBERS, (2) OPERATIONS WITH SETS, (3) DIVISORS AND MULTIPLES OF A NUMBER, AND (4) ACTIVITIES INVOLVING DIVISORS AND MULTIPLES. ACCOMPANYING THESE BOOKLETS WILL BE A "TEACHING STRATEGY BOOKLET" WHICH WILL INCLUDE A DESCRIPTION OF TEACHER TECHNIQUES, METHODS, SUGGESTED SEQUENCES, ACADEMIC GAMES, AND SUGGESTED VISUAL MATERIALS. (RP)

1754 ED 016 614
ROBBINS, MORTON VAN SPEYBROECK, JAMES
SETS, SENTENCES, AND SYSTEMS. HANDBOOK FOR JUNIOR HIGH SCHOOL MATHEMATICS WORKSHOPS.
Illinois State Office of the Superintendent of Public Instruction, Springfield.
Note—63P.
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—*Inservice Teacher Education, *Mathematics, Mathematics Materials, *Secondary School Mathematics, Teacher Education, *Teacher Workshops

THIS WORKBOOK FOR TEACHERS IS CONCERNED WITH IDEAS AND CONCEPTS THAT WERE CONSIDERED IN A JUNIOR HIGH SCHOOL MATHEMATICS PROGRAM. THE ORGANIZATION WAS DETERMINED BY TWO MAJOR GOALS--(1) TO PROVIDE AN INSERVICE TRAINING WORKSHOP WHICH WOULD BE OF IMMEDIATE USE TO THE JUNIOR HIGH SCHOOL MATHEMATICS TEACHER, AND (2) TO PROVIDE THE TEACHER WITH AN OVERVIEW OF THE MAJOR OBJECTIVES OF A JUNIOR HIGH SCHOOL MATHEMATICS PROGRAM AND THE THEORY UPON WHICH THESE OBJECTIVES ARE BASED. PRELIMINARY NOTIONS OF ELEMENTARY SET THEORY AND THE MATHEMATICAL SENTENCE ARE DISCUSSED BEFORE PROCEEDING TO THE NATURAL NUMBERS, THE INTEGERS, AND THE RATIONAL NUMBER SYSTEM. (RP)

1755 ED 012 633
BRUNS, CARL AND OTHERS
QUIPS AND TIPS ON CUISENAIRE.
Cuisenaire Co. of America, New York, N.Y.
Pub Date—JUN63
Note—48P.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Elementary Education, *Fundamental Concepts, *Mathematical Concepts, Mathematical Enrichment, Mathematics Curriculum, *Mathematics Materials, Number Concepts, Teaching Guides
Identifiers—CUISENAIRE MATERIALS, Missouri (University City)

THIS DOCUMENT IS A TEACHING GUIDE TO AID IN THE USE OF CUISENAIRE MATERIALS TO PRESENT FUNDAMENTAL MATHEMATICAL CONCEPTS TO ELEMENTARY SCHOOL CHILDREN. CONCEPTS OF AND EXERCISES IN COUNTING, NUMBERING, ADDING, DIVIDING, SUBTRACTING, AND MULTIPLYING ARE EMPHASIZED. IN ADDITION, CONCEPTS OF FRACTIONS, DISTRIBUTIVE PROPERTIES OF NUMBERS, RECTANGULAR NUMBERS, TRIANGULAR NUMBERS, AND PERMUTATIONS ARE DISCUSSED. A FEW CLASSROOM ACTIVITIES (GAMES, DRAWING ACTIVITIES, AND RHYTHM ACTIVITIES ARE PRESENTED. A LIST OF DEFINITIONS OF SYMBOLS AND TERMS USED IN THE DOCUMENT AND A BIBLIOGRAPHY OF RELATED MATERIALS ARE INCLUDED. (FS)

OBJECTIVES

1800 ED 178 312
Flax, Rosabel And Others
Guidelines for Teaching Mathematics K-12.
Kansas State Dept. of Education, Topeka. Div. of Education Services.
Pub Date—Jun 79
Note—91p.; Best copy available
Pub Type— Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—*Directories, *Elementary School Mathematics, Elementary Secondary Education, Guidelines, *Mathematics Curriculum, *Resource Teachers, *Secondary School Mathematics, *State Curriculum Guides, State Departments of Education
Identifiers—*Kansas

This guide is intended to provide a basic outline for developing local mathematics programs. It was developed to give Kansas mathematics teachers from grades K-12 minimal sequential experiences in implementing the skills, values, and concepts of the mathematics program. The guide contains objectives, a checklist of topics appropriate for each grade level, and a human resources guide which provides the names of individuals willing to serve as technical assistants to local school districts. (MK)

1801 ED 178 302
Williamson, Paul M., Comp.
Mathematics Program.
Smith Coll., Northampton, Mass.
Pub Date—79
Note—72p.; Page 16 removed due to copyright restrictions; Figures contain occasional marginal legibility
Pub Type— Guides - General (050)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Curriculum Development, *Curriculum Guides, *Early Childhood Education, Elementary Education, *Elementary School Mathematics, *Mathematics Education, Preschool Education
Identifiers—*Smith College Campus School MA

This program description contains goals and objectives for five mathematics curriculum levels: three- and four-year-olds, five-year-olds, six- and seven-year-olds, eight- and nine-year-olds, and ten- and eleven-year-olds. A mathematics program overview for Smith College Campus School and a discussion of considerations for mathematics curriculum decision making are also presented. (MK)

1802 ED 164 261
Specialized Mathematics Courses, Secondary Level: Learning Objectives, Scope and Sequence.
Lehigh County Community Coll., Schnecksville, Pa.; Northern Lehigh School District, Slatington, Pa.
Pub Date—[78]
Note—63p.; For related document, see SE 025 256; Contains occasional light and broken type
Pub Type— Guides - General (050)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—*Achievement, Algebra, Analytic Geometry, *Behavioral Objectives, *Curriculum, Curriculum Guides, Geometry, *Instruction, Mathematical Applications, *Program Descriptions, Secondary Education, *Secondary School Mathematics, Trigonometry

In this document, detailed objectives for the following courses are listed: Algebra I, Algebra II, Geometry, Trigonometry, Analytic Geometry, Advanced Mathematics, Personal Business Mathematics, and Business Mathematics. Each objective is keyed to an expected level of achievement: awareness, knowledge, application, mastery, reinforcement, and enrichment. Also contained herein is an overview of the basic mathematics program at Northern Lehigh School District. (MP)

1803 ED 164 260
Basic Mathematics Programs, K-12: Learning Objectives, Scope and Sequence.
Lehigh County Community Coll., Schnecksville, Pa.; Northern Lehigh School District, Slatington, Pa.
Pub Date—[78]
Note—102p.; For related document, see SE 025 257; Contains occasional light and broken type
Pub Type— Guides - General (050)
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—*Achievement, *Behavioral Objectives, *Curriculum, Curriculum Guides, Elementary Secondary Education, Fractions, Geometry, *Instruction, Mathematical Applications, *Mathematics Education, Measurement, Number Concepts, *Program Descriptions
Identifiers—*Number Operations

In this document, detailed objectives for each grade level are listed according to the following categories: for grades K-9, numeration, basic operations, fractions, money and time, and measurement and geometry; for grades 10-12, numeration, basic operations, fractions, and practical applications. Each objective is keyed to an expected level of achievement: awareness, knowledge, application, mastery, reinforcement, and enrichment. An overview of the basic mathematics program at Northern Lehigh School District is also presented. (MP)

1804 ED 134 429
K-12 Mathematics Program Baseline, Field Test Copy, Appendix A.
Dallas Independent School District, Tex.
Pub Date—[75]
Note—221p.; For related documents, see SE 021 678-681; Contains occasional light and broken type
Pub Type— Guides - General (050)
EDRS Price - MF01/PC09 Plus Postage.
Descriptors—Curriculum, *Curriculum Guides, *Elementary School Mathematics, Elementary Secondary Education, Mathematics Education, Objectives, *Secondary School Mathematics
Identifiers—Dallas Independent School District TX

This document discusses the rationale and the program goals for the K-12 mathematics curriculum for the Dallas Independent School District. Minimum mastery objectives expected of all high school graduates are specified. Mastery objectives for each grade level from K through 8 are listed, and class progress charts are included. The evaluation form for ninth-grade placement, a career planning sheet, a course relationship guide, suggested four-year mathematics programs for grades 9 through 12, and mastery objectives for grades 9 through 12 are provided. A textbook list and chart showing the K-12 continuum of mastery objectives also are included. (DT)

1805 ED 125 923
Mathematics K-12, Problem Solving. Utica City School District Articulated Curriculum: Project SEARCH, 1975.
Utica City School District, N.Y.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—75
Note—18p.; For related documents, see SE 021 195-199; Light and broken type throughout
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Behavioral Objectives, Curriculum, *Curriculum Guides, Elementary School Mathematics, *Elementary Secondary Education, Mathematics Education, *Objectives, Problem Solving, *Secondary School Mathematics
Identifiers—Elementary Secondary Education Act Title III

This document is one of six which set forth the mathematics components of the Project SEARCH Articulated Curriculum developed by the Utica (New York) City School District. Each volume deals with a broad area of mathematics and lists objectives related to that area for all grades from K through 12. Each objective listed is described first in general terms and then in terms of specific skills which students should exhibit. This volume addresses techniques of solving problems throughout the curriculum. (SD)

1806 ED 125 922
Mathematics K-12, Operations. Utica City School District Articulated Curriculum: Project SEARCH, 1975.
Utica City School District, N.Y.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—75
Note—30p.; For related documents, see SE 021 195-200; Light and broken type throughout
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Algebra, *Basic Skills, Behavioral Objectives, Curriculum, *Curriculum Guides, *Elementary School Mathematics, Elementary Secondary Education, Mathematics Education, Number Systems, *Objectives, *Secondary School Mathematics
Identifiers—Elementary Secondary Education Act Title III

This document is one of six which set forth the mathematics components of the Project SEARCH Articulated Curriculum developed by the Utica (New York) City School District. Each volume deals with a broad area of mathematics and lists objectives related to that area for all grades from K through 12. Each objective listed is described first in general terms and then in terms of specific skills which students should exhibit. Computation and properties of operations are addressed in this volume. The objectives posed for the grades K-8 are related to skill and understanding of computation with whole numbers, fractions, and decimals. Algebra is addressed at the upper grade levels (9 through 12). (SD)

1807 ED 125 921
Mathematics K-12, Number and Numeration. Utica City School District Articulated Curriculum: Project SEARCH, 1975.
Utica City School District, N.Y.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—75
Note—19p.; For related documents, see SE 021 195-200; Light and broken type throughout
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Behavioral Objectives, Curriculum, *Curriculum Guides, *Elementary School Mathematics, Elementary Secondary Education, Mathematics Education, *Number Concepts, Number Systems, *Objectives, *Secondary School Mathematics
Identifiers—Elementary Secondary Education Act Title III

This document is one of six which set forth the mathematics components of the Project SEARCH Articulated Curriculum developed by the Utica (New York) City School District. Each volume deals with a broad area of mathematics and lists objectives related to that area for all grades from K through 12. Each objective listed is described first in general terms and then in terms of specific skills which students should exhibit. This volume concerns numbers and systems of numeration. The topics range from counting and recognition of numerals at the early levels to use of nondecimal systems, permutations and combinations, and interpretation of percents at upper levels. (SD)

1808 ED 125 920
Mathematics K-12, Measurement. Utica City School District Articulated Curriculum: Project SEARCH, 1975.
Utica City School District, N.Y.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—75
Note—16p.; For related documents, see SE 021 195-200; Light and broken type throughout
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Behavioral Objectives, Curriculum, *Curriculum Guides, *Elementary School Mathematics, Elementary Secondary Education, Mathematics Education, *Measurement, *Objectives, *Secondary School Mathematics
Identifiers—Elementary Secondary Education Act Title III

This document is one of six which set forth the mathematics components of the Project SEARCH Articulated Curriculum developed by the Utica (New York) City School District. Each volume deals with a broad area of mathematics and lists objectives related to that area for all grades from K through 12. Each objective listed is described first in general terms and then in terms of specific skills which students should exhibit. This volume covers topics related to measurement. These include money, calendar, time, temperature, weight, linear measure, liquid measure, area and volume, error of measurement, and techniques of graphing and interpreting graphs. Both metric and English systems of measurement are used. (SD)

1809 ED 125 919
Mathematics K-12, Geometry. Utica City School District Articulated Curriculum: Project SEARCH, 1975.
Utica City School District, N.Y.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—75
Note—17p.; For related documents, see SE 021 195-200; Light and broken type throughout
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Behavioral Objectives, Curriculum, *Curriculum Guides, Elementary School Mathematics, *Elementary Secondary Education, Geometric Concepts, *Geometry, Mathematics Education, *Objectives, *Secondary School Mathematics, Trigonometry
Identifiers—Elementary Secondary Education Act Title III

This document is one of six which set forth the mathematics components of the Project SEARCH Articulated Curriculum developed by the Utica (New York) City School District. Each volume deals with a broad area of mathematics and lists objectives related to that area for all grades from K through 12. Each objective listed is described first in general terms and then in terms of specific skills which students should exhibit. This volume concerns geometric concepts, theorems, and methods, including trigonometry and a few topics from the calculus. (SD)

1810 ED 125 918
Mathematics K-12, Sets. Utica City School District Articulated Curriculum: Project SEARCH, 1975.
Utica City School District, N.Y.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—75
Note—16p.; For related documents, see SE 021 196-200; Light and broken type throughout
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Behavioral Objectives, Curriculum, *Curriculum Guides, *Elementary School Mathematics, Elementary Secondary Education, Mathematics Education, *Objectives, *Secondary School Mathematics, *Set Theory, Symbols (Mathematics)
Identifiers—Elementary Secondary Education Act Title III

This document is one of six which set forth the mathematics components of the Project SEARCH Articulated Curriculum developed by the Utica (New York) City School District. Each volume deals with a broad area of mathematics and lists objectives related to that area for all grades from K through 12. Each objective listed is described first in general terms and then in terms of specific skills which students should exhibit. The objectives listed in this volume are related to the development of set theoretic language, symbolism, and usage. In addition, high school objectives concerning probability and sets related to the definition of functions are included. (SD)

1811 ED 116 969
A Computerized, Comprehensive Achievement Monitoring (CAM) Compatible, Data Bank of Mathematics Objectives for Individualized Adult Basic Education Programs.
Canadore Coll., North Bay (Ontario).
Pub Date—75
Note—106p.; Marginal Legibility
Available from—ERIC/SMEAC, The Ohio State University, 1200 Chambers Road, 3rd Floor, Columbus, Ohio 43212 (on loan)
Pub Type— Guides - General (050)
Document Not Available from EDRS.
Descriptors—*Adult Education, *Basic Skills, *Behavioral Objectives, Curriculum, Instruction, *Mathematics Education, *Number Concepts, Objectives, Postsecondary Education
Identifiers—Canada

This mathematics data bank of generic objectives was developed as the major element of an implementation of Comprehensive Achievement Monitoring in the Individualized and Personalized Adult Basic Education Program of the Canadore College (North Bay, Ontario) Continuing Education Division. The bank contains approximately 900 objectives organized into 88 blocks. The blocks are further subdivided into unit modules. The objectives listed range from ability to count elements in a discrete set to ability to manipulate algebraic expressions and solve work problems. (Author/SD)

1812 ED 111 633
Mathematics Content Authority List: K-8.
Pennsylvania State Dept. of Education, Harrisburg. Bureau of Instructional Support Services.
Pub Date—74
Note—170p.
Pub Type— Miscellaneous (999)
EDRS Price - MF01/PC07 Plus Postage.
Descriptors—Computer Oriented Programs, *Curriculum, *Elementary School Mathematics, Elementary Secondary Education, *Information Retrieval, Information Services, Instruction, *Mathematical Concepts, *Mathematics Education, Objectives, Secondary School Mathematics
Identifiers—Pennsylvania

This document is a list of approximately 450 mathematical concepts which are taught in grades K-8. The list is organized into eight major topics: (1) number systems, (2) numeration and notation, (3) sets, (4) geometry, (5) measurement, (6) number patterns and relationships, (7) other topics, and (8) summaries. The Content Authority List is used in conjunction with the Behavioral Objectives Authority List and the Vocabulary Authority List in the Pennsylvania Retrieval of Information for Mathematics Education System (PRIMES). This system of information storage and retrieval is used by local school districts in decision making with respect to curriculum, instruction, and evaluation. (SD)

1813 ED 108 975
Program of Studies, Mathematics.
Fairfax County Schools, Va.
Pub Date—3 Sep 74
Note—219p.
Pub Type— Guides - General (050)
EDRS Price - MF01/PC09 Plus Postage.
Descriptors—Course Content, Curriculum, *Curriculum Guides, *Elementary School Mathematics, Elementary Secondary Education, Mathematics Education, *Objectives, *Program Descriptions, *Secondary School Mathematics
Identifiers—Fairfax County Schools VA, Virginia

This mathematics curriculum guide of the Fairfax County (Virginia) public schools provides a description of the total program, as well as detailed statements related to objectives of the elementary, intermediate, and high school programs and discussions of individual courses. For the elementary grades (K-6), learning objectives are organized by strands, with objectives written for each level within the strand. The levels are designed to promote continuity in each student's progression in the program. The intermediate program, required of all students, provides a bridge to later courses and exposure to a variety of mathematical concepts. The high school program includes 17 courses from which the student may select sequences defined in this document. Objectives are defined for each course. (SD)

1814 ED 097 202
Baker, William E. And Others
Performance Objectives and Criterion Referenced Test Items for Mathematics.
Duval County School Board, Jacksonville, Fla.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—Jun 73
Note—141p.
Pub Type— Guides - General (050)
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—Algebra, *Behavioral Objectives, *Criterion Referenced Tests, Geometry, *Guides, Mathematics Education, Postsecondary Education, *Secondary School Mathematics, Technical Mathematics, Tests, Two Year College Students
Identifiers—Elementary Secondary Education Act Title III

This is a catalog of performance objectives and criterion measures covering algebra I, algebra II, geometry, and trigonometry for students planning to take technical mathematics at a junior college. Broad objectives, specific objectives, and criterion referenced test items are presented by skill and knowledge areas within each of the four courses mentioned. An accuracy level of 70 percent on the criterion measures is suggested. (LS)

1815 ED 089 950
Mignerey, Richard E.
Minimal Performance Objectives for Mathematics Education in Michigan.
Michigan Council of Teachers of Mathematics.; Michigan State Dept. of Education, Lansing.
Pub Date—73
Note—123p.
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—Basic Skills, *Behavioral Objectives, Curriculum, *Elementary School Mathematics, Geometric Concepts, Instruction, Mathematics Education, Number Concepts, Objectives, *Secondary School Mathematics, *State Standards
Identifiers—Michigan

An explicit and complete list of the Minimal Performance Objectives for Mathematics Education in Michigan public schools is contained in this document. The objectives are organized under the five major topics of Arithmetic, Measurement, Geometry, Algebra, and Probability and Statistics. Examples and comments are included. A summary of the rationale for setting these objectives and the method by which they were derived is also provided. (JP)

1816 ED 086 560
Mathematics Education: Student Terminal Goals, Program Goals, and Behavioral Objectives.
Mesa Public Schools, Ariz.
Pub Date—[73]
Note—17p.
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Basic Skills, *Behavioral Objectives, *Curriculum, *Elementary School Mathematics, Instruction, Junior High School Students, *Mathematics Education, Measurement, Number Concepts, Number Systems, *Objectives, Problem Solving, Secondary School Mathematics

Behavioral objectives are listed for the primary, intermediate and junior high mathematics curriculum in the Mesa Public Schools (Arizona). Lists of specific objectives are given by level for sets, symbol recognition, number operations, mathematical structures, measurement and problem solving skills. (JP)

1817 ED 077 740
Rogers, Arnold R., Ed. And Others
Secondary Schools Curriculum Guide, Mathematics, Grades 10-12, Levels 87-112.
Cranston School Dept., R.I.
Spons Agency—Office of Education (DHEW), Washington, D.C. Projects to Advance Creativity in Education.
Pub Date—72
Note—145p.; Draft Copy
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—*Behavioral Objectives, Calculus, Computers, *Curriculum, Curriculum Guides, Geometry, Mathematics Education, Number Concepts, Objectives, Probability, *Secondary School Mathematics
Identifiers—Elementary Secondary Education Act Title III, Objectives Bank

Behavioral objectives for geometry, algebra, computer mathematics, trigonometry, analytic geometry, calculus, and probability are specified for grades 10 through 12. General objectives are stated for major areas under each topic and are followed by a list of specific objectives for that area. This work was prepared under an ESEA Title III contract. (DT)

1818 ED 077 739
Rogers, Arnold R., Ed. And Others
Secondary Schools Curriculum Guide, Mathematics, Grades 7-9, Levels 1-86.
Cranston School Dept., R.I.
Spons Agency—Office of Education (DHEW), Washington, D.C. Projects to Advance Creativity in Education.
Pub Date—72
Note—179p.; Draft Copy
EDRS Price - MF01/PC08 Plus Postage.
Descriptors—Algebra, *Behavioral Objectives, *Curriculum, Curriculum Guides, Geometric Concepts, Mathematics Education, Number Concepts, Objectives, *Secondary School Mathematics, Set Theory
Identifiers—Elementary Secondary Education Act Title III, Objectives Bank

Listed are behavioral objectives for 86 topics in mathematics to be covered in grades seven through nine. For each topic a general objective is given and is followed by a list of specific objectives. Areas covered include number operations, geometry, number systems, set theory, and algebra. This work was prepared under an ESEA Title III contract.

(DT)

1819 ED 077 736
I.P.P.E.S. Master Objectives Bank, Mathematics (K-6) Catalog.
Jackson Union School District, Mich.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.; Michigan State Dept. of Education, Lansing.
Pub Date—[73]
Note—206p.
EDRS Price - MF01/PC09 Plus Postage.
Descriptors—Behavioral Objectives, Catalogs, Codification, *Curriculum, *Elementary School Mathematics, Geometric Concepts, Information Retrieval, Mathematics Education, Measurement, Number Concepts, *Objectives
Identifiers—Elementary Secondary Education Act Title III, Number Operations, Objectives Bank

The coding system used to classify items in the Instructional Program Planning and Evaluation System (IPPES) Master Objectives Bank is explained. Objectives for 67 topics in mathematics are organized by grade level for each of the grades from kindergarten through six, and their code numbers are specified. (For a listing of objectives by topic, see SE 016 295.) This work was prepared under an ESEA Title III contract. (DT)

1820 ED 077 735
I.P.P.E.S. Master Objectives Bank, Mathematics Instructional Topic Catalog.
Jackson Union School District, Mich.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.; Michigan State Dept. of Education, Lansing.
Pub Date—[73]
Note—260p.
EDRS Price - MF01/PC11 Plus Postage.
Descriptors—Behavioral Objectives, Catalogs, Codification, *Curriculum, *Elementary School Mathematics, Geometric Concepts, Information Retrieval, Mathematics Education, Measurement, Number Concepts, *Objectives
Identifiers—Elementary Secondary Education Act Title III, Number Operations, Objectives Bank

The coding system used to classify items in the Instructional Program Planning and Evaluation System (IPPES) Master Objectives Bank is explained. Sixty-seven topics in mathematics to be covered in grades kindergarten through six are specified; objectives are listed under these topics along with their code numbers. (For a listing by grade level, see SE 016 296.) This work was prepared under an ESEA Title III contract. (DT)

1821 ED 073 553
Course Goals in Mathematics, Grades K-12. Critique Draft.
Multnomah County Intermediate Education District, Portland, Oreg.
Spons Agency—National Center for Educational Research and Development (DHEW/OE), Washington, D.C. Regional Research Program.; Oregon State Board of Education, Salem.
Bureau No.—BR-2-J-032
Pub Date—72
Contract—OEC-X-72-0026(257)
Note—184p.; Tri-County Goal Development Project
Available from—Hard copy is not available
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Accountability, Course Content, *Course Objectives, *Curriculum Development, Development, Educational Objectives, *Mathematics, *Mathematics Curriculum, *Mathematics Education, Public Schools

This document is one part of a critique series that deals with the development and evaluation of course goals in six subject matter areas for grades K-12. The series provides an initial pool of course-level goals that are expected to be of considerable value in assisting educators with goal definition related to curriculum planning and development, instruction, evaluation, and accountability. Goals for the mathematics curriculum are organized according to a subject matter taxonomy. Number systems goals are divided into goals for whole numbers, integers, rational numbers, real numbers, complex numbers, matrices and determinants, vectors, and algebraic expressions. Goals for numeration, mathematical sentences and their solutions, relations and functions, geometry, measurement, sets, logic, probability and statistics, history of mathematics, and use of computational devices are also presented. Four sets of indexes offer the possibility of retrieving course goals by subject matter, knowledge and process, subject area, and career education. Related documents are EA 004 941-2, EA 004 943-948, and ED 061 043. (Author/DN)

1822 ED 069 500
Mathematics Objectives, Level 7 [Project SPPED, System for Program and Pupil Evaluation and Development].
New York State Education Dept., Albany. Bureau of School and Cultural Research.
Pub Date—72
Note—177p.
EDRS Price - MF01/PC08 Plus Postage.
Descriptors—Algebra, Arithmetic, *Behavioral Objectives, *Curriculum, Elementary School Mathematics, *Evaluation, Geometry, Grade 7, *Objectives, *Secondary School Mathematics

This is the fourth volume of a series produced by the New York State Education Department. Originally developed by four local school districts, the mathematics objectives and sample items included were not intended to be official or comprehensive but rather to be used as an aid to teachers in constructing curricula and in making classroom goals clear and precise. The document presents a series of 300 examples, each of which states an objective and gives a sample item. The objectives are classified under one of 12 sections: sets; number, numeral, and numeration systems; whole numbers; fractions (positive rationals); decimals; integers; ratio, proportion, and percent; measurement; geometry; problem solving/word problems; algebra; and statistics and probability. For other volumes in this series, see ED 064 165, ED 064 166, ED 064 167, SE 014 469, and SE 014 548. (DT)

1823 ED 069 484
Zander, Del And Others
A Math Continuum, Part D.
Washington Office of the State Superintendent of Public Instruction, Olympia.
Pub Date—Jun 72
Note—775p.
EDRS Price - MF05/PC31 Plus Postage.
Descriptors—*Achievement, Algorithms, Curriculum, *Elementary School Mathematics, *Evaluation, Geometry, *Instructional Materials, Measurement, Number Concepts, *Objectives, Special Education, Testing

Evaluation sheets and developmental checklists, prepared by three special education departments, are provided to facilitate continuous measurement of student progress in elementary school mathematics. One hundred forty-three objectives are given, and each is followed by a continuum-oriented set of worksheet-type pages on mathematics skills. The sheets were not intended to be used for seatwork or as a replacement for a school's present program in mathematics but to provide a fast means for evaluating each child's progress. No suggestions for diagnosis are included. The objectives cover content in number concepts; all operations with whole numbers, decimals, and fractions; adding and subtracting integers; commutative, associative, and distributive laws; problems in money, time, and units of measurement; and recognition of geometric figures. (DT)

1824 ED 069 475
Henderson, George L. And Others
Wisconsin Statewide Assessment Mathematics. An Exemplary Mathematics Program Grades K-8 and a Hierarchy of Student Behavioral Objectives K-8.
Wisconsin State Dept. of Education, Madison.
Note—38p.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Behavioral Objectives, *Curriculum, *Elementary School Mathematics, *Evaluation, Instruction, *Mathematics Education, *Objectives

Overall goals for a model K-8 mathematics program are stated. A hierarchy of over 400 mathematics content objectives for grades K-8 are listed in a prerequisite and sequential order and also organized in a grid form. Suggestions as to how the objectives can be used and a checklist of objectives upon which Wisconsin's statewide mathematics assessment test items will be based are included. (DT

1825 ED 067 258
Mathematics Objectives, Level 8 [Project SPPED, System for Program and Pupil Evaluation and Development].
New York State Education Dept., Albany. Bureau of School and Cultural Research.
Pub Date—72
Note—164p.
EDRS Price - MF01/PC07 Plus Postage.
Descriptors—Algebra, Arithmetic, *Behavioral Objectives, *Curriculum, *Evaluation, Geometry, Grade 8, *Objectives, *Secondary School Mathematics

This is volume five of a series produced by the New York State Education Department. Originally developed by four local school districts, the mathematics objectives and sample items are not intended to be official or comprehensive, but to be an aid to teachers in constructing curricula and in making classroom goals clear and precise. The document presents a series of 281 examples, each of which states an objective and gives a sample item. The objectives are classified into 13 sections: sets; number, numeral, and numeration systems; whole numbers; fractions (positive rationals); decimals; integers; real numbers; ratio, proportion, and percent; measurement; geometry; problem solving-/word problems; algebra; and statistics and probability. For related documents in this series, see ED 064 165, ED 064 166, ED 064 167, and SE 014 469. (DT)

1826 ED 067 237
Mathematics Objectives, Level 6 [Project SPPED, System for Program and Pupil Evaluation and Development].
New York State Education Dept., Albany. Bureau of School and Cultural Research.
Pub Date—72
Note—190p.
EDRS Price - MF01/PC08 Plus Postage.
Descriptors—Algebra, Arithmetic, *Behavioral Objectives, *Curriculum, *Elementary School Mathematics, *Evaluation, Geometry, Grade 6, *Objectives

This is the third volume of a series produced by the New York State Education Department. Originally developed by four local school districts, the mathematics objectives and sample items included were not intended to be official or comprehensive but rather to be used as an aid to teachers in constructing curricula and in making classroom goals clear and precise. The document presents a series of 337 examples, each of which states an objective and gives a sample item. The objectives are classified under one of 11 sections: sets; number, numeral, and numeration systems; whole numbers; fractions (positive rationals); decimals; ratio, proportion, and per cent; measurement; geometry; problem solving-/word problems; algebra; and statistics and probability. For related volumes, see ED 064 165, ED 064 166, ED 064 167, and SE 014 548. (DT)

1827 ED 067 077
Purdy, Leslie, Comp.
Instructional Objectives for a Junior College Course in Intermediate Algebra.
Pub Date—72
Note—43p.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Algebra, *Behavioral Objectives, Course Objectives, *Mathematics, *Mathematics Instruction, *Two Year Colleges

These instructional objectives, written by Harvey Reynolds, have been selected from materials used at Golden West College (California). These objectives are offered simply as samples that may be used where they correspond to the skills, abilities, and attitudes instructors want their students to acquire. These objectives may also serve as models for assisting instructors to translate their courses into specific measurable terms. For other objectives in related courses see: ED 033 683 (College Algebra); and ED 049 751 (Intermediate Algebra). (MB)

1828 ED 066 497
Lieberman, Marcus And Others
High School Mathematics: Behavioral Objectives and Test Items.
Institute for Educational Research, Downers Grove, Ill.
Pub Date—72
Note—810p.
Available from—Institute for Educational Research, 1400 West Maple Avenue, Downers Grove, Illinois 60515 ($16.00)

EDRS Price - MF05/PC33 Plus Postage.
Descriptors—*Behavioral Objectives, Curriculum Development, *High Schools, *Individualized Instruction, *Item Banks, *Mathematics, Program Evaluation
Identifiers—Elementary Secondary Education Act Title III, *Evaluation for Individualized Instruction Project

The Objective-Item Bank presented covers 16 sections of four subject areas in each of four grade levels. The four areas are: Language Arts, Math, Social Studies, and Science. The four grade levels are: Primary, Intermediate, Junior High, and High School. The Objective-Item Bank provides school administrators with an initial starting point for curriculum development and with the instrumentation for program evaluation, and offers a mechanism to assist teachers in stating more specifically the goals of their instructional program. In addition, it provides the means to determine the extent to which the objectives are accomplished. This document presents the Objective Item Bank for high school mathematics. (CK)

1829 ED 066 496
Lieberman, Marcus And Others
Junior High Mathematics: Behavioral Objectives and Test Items.
Institute for Educational Research, Downers Grove, Ill.
Pub Date—[72]
Note—236p.
Available from—Institute for Educational Research, 1400 West Maple Avenue, Downers Grove, Illinois 60515 ($7.00)
EDRS Price - MF01/PC10 Plus Postage.
Descriptors—*Behavioral Objectives, Curriculum Development, *Individualized Instruction, *Item Banks, *Junior High Schools, *Mathematics, Program Evaluation
Identifiers—Elementary Secondary Education Act Title III, *Evaluation for Individualized Instruction Project

The Objective-Item Bank presented covers 16 sections of four subject areas in each of four grade levels. The four areas are: Language Arts, Math, Social Studies, and Science. The four grade levels are: Primary, Intermediate, Junior High, and High School. The Objective-Item Bank provides school administrators with an initial starting point for curriculum development and with the instrumentation for program evaluation, and offers a mechanism to assist teachers in stating more specifically the goals of their instructional program. In addition, it provides the means to determine the extent to which the objectives are accomplished. This document presents the Objective Item Bank for Junior High mathematics. (CK)

1830 ED 066 495
Lieberman, Marcus And Others
Intermediate Mathematics: Behavioral Objectives and Test Items.
Institute for Educational Research, Downers Grove, Ill.
Pub Date—72
Note—587p.
Available from—Institute for Educational Research, 1400 West Maple Avenue, Downers Grove, Illinois 60515 ($13.00)
EDRS Price - MF03/PC24 Plus Postage.
Descriptors—*Behavioral Objectives, Curriculum Development, *Elementary Education, *Individualized Instruction, *Item Banks, *Mathematics, Program Evaluation
Identifiers—Elementary Secondary Education Act Title III, *Evaluation for Individualized Instruction Project

The Objective-Item Bank presented covers 16 sections of four subject areas in each of four grade levels. The four areas are: Language Arts, Math, Social Studies, and Science. The four grade levels are: Primary, Intermediate, Junior High, and High School. The Objective-Item Bank provides school administrators with an initial starting point for curriculum development and with the instrumentation for program evaluation, and offers a mechanism to assist teachers in stating more specifically the goals of their instructional program. In addition, it provides the means to determine the extent to which the objectives are accomplished. This document presents the Objective Item Bank for intermediate mathematics. (CK)

1831 ED 066 494
Lieberman, Marcus And Others
Primary Mathematics: Behavioral Objectives and Test Items.
Institute for Educational Research, Downers Grove, Ill.
Pub Date—72
Note—173p.
Available from—Institute for Educational Research, 1400 West Maple Avenue, Downers Grove, Illinois 60515 ($4.00)
EDRS Price - MF01/PC07 Plus Postage.
Descriptors—*Behavioral Objectives, Curriculum Development, *Individualized Instruction, *Item Banks, *Mathematics, *Primary Education, Program Evaluation
Identifiers—Elementary Secondary Education Act Title III, *Evaluation for Individualized Instruction Project

The Objective-Item Bank presented covers 16 sections of four subject areas in each of four grade levels. The four areas are: Language Arts, Math, Social Studies, and Science. The four grade levels are: Primary, Intermediate, Junior High, and High School. The Objective-Item Bank provides school administrators with an initial starting point for curriculum development and with the instrumentation for program evaluation, and offers a mechanism to assist teachers in stating more specifically the goals of their instructional program. In addition, it provides the means to determine the extent to which the objectives are accomplished. This document presents the Objective Item Bank for primary mathematics. (CK)

1832 ED 064 167
Mathematics Objectives, Level 5 [Project SPPED, System for Program and Pupil Evaluation and Development].
New York State Education Dept., Albany. Bureau of School and Cultural Research.
Pub Date—72
Note—129p.
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—Algebra, Arithmetic, *Behavioral Objectives, *Curriculum, *Elementary School Mathematics, *Evaluation, Geometry, *Objectives, Set Theory

This is the second volume of a series produced by the State Education Department of the University of the State of New York. Mathematics objectives and sample items included were originally developed by four local school districts and are not intended to be official or comprehensive, but an aid to teachers in constructing curricula and making classroom goals clear and precise. The document presents a series of examples, each of which states an objective and gives a sample item. There are ten sections: sets; number, numeral, and numeration systems; whole numbers; fractions (positive rationals); decimals; measurement; geometry; problem solving/word problems; algebra; statistics and probability. Related documents are SE 014 173 and 014 174. (JM)

1833 ED 064 166
Mathematics Objectives, Levels K-4 [Project SPPED, System for Program and Pupil Evaluation and Development].
New York State Education Dept., Albany. Bureau of School and Cultural Research.
Pub Date—72
Note—78p.
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—Arithmetic, *Behavioral Objectives, *Curriculum, *Elementary School Mathematics, *Evaluation, Number Systems, *Objectives

This is the first volume of a series produced by the State Education Department of the University of the State of New York. Mathematics objectives and sample items included were originally developed by four local school districts and are not intended to be official or comprehensive, but an aid to teachers in constructing curricula and making classroom goals clear and precise. The document presents a series of examples, each of which states an objective and gives a sample item. There are five sections, each covering one level. Level four is the largest and is subdivided into: number, numeral, and numeration systems; whole numbers; measurement; geometry; problem solving/word problems; algebra; statistics and probability. Related documents are SE 014 173 and 014 175. (JM,

1834 ED 064 165
Mathematics Objectives, Level 9 [Project SPPED, System for Program and Pupil Evaluation and Development].
New York State Education Dept., Albany. Bureau of School and Cultural Research.
Pub Date—72
Note—71p.
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Algebra, Arithmetic, *Behavioral Objectives, *Curriculum, *Evaluation, Geometry, *Objectives, *Secondary School Mathematics, Trigonometry

This is the sixth volume of a series produced by the State Education Department of the University of the State of New York. Mathematics objectives and sample items included were originally developed by four local school districts and are not intended to be official or comprehensive, but an aid to teachers in constructing curricula and making classroom goals clear and precise. The document presents a series of examples, each of which states an objective and gives a sample item. There are 13 sections: number, numeral, and numeration systems; whole numbers; fractions (positive rationals); decimals; integers; real numbers; ratio, proportion, and percent; measurement; geometry; problem solving/word problems; algebra; statistics and probability; and trigonometry functions. For related documents, see SE 014 174 and 014 175. (JM)

1835 ED 051 186
Henderson, George L. And Others
Guidelines to Mathematics, 6-8. Key Content Objectives, Student Behavioral Objectives, and Other Topics Related to Grade 6-8 Mathematics.
Wisconsin State Dept. of Public Instruction, Madison.
Note—44p.; Bulletin No. 186
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Curriculum Guides, *Grade 6, *Grade 7, *Grade 8, *Mathematics Curriculum

GRADES OR AGES: Grades 6-8. SUBJECT MATTER: Mathematics. ORGANIZATION AND PHYSICAL APPEARANCE: The guide is divided into three chapters. The central and longest chapter, which outlines course content, is further subdivided into 17 units, one for each of 17 content objectives. This chapter is in list form. The guide is offset printed and staple-bound with a paper cover. OBJECTIVES AND ACTIVITIES: The central chapter lists 17 mathematical concepts such as numeration systems, ratio and proportion, size and shape, measurement, and statistics and probability. A list of related behavioral objectives for each concept at each grade level is then presented. A "summary" list for grades K-5 is also included. No specific activities are mentioned, although one chapter gives general guidelines on developing problem-solving situations. INSTRUCTIONAL MATERIALS: No mention. STUDENT ASSESSMENT: Readers are referred to the guide for grades K-6 (SP 007 249). (RT)

1836 ED 051 185
Chandler, Arnold M. And Others
Guidelines to Mathematics, K-6. Key Content Objectives, Student Behavioral Objectives, and Other Topics Related to Elementary School Mathematics.
Wisconsin State Dept. of Public Instruction, Madison.
Note—58p.; Bulletin No. 141
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—*Curriculum Guides, *Elementary Education, *Elementary School Mathematics, Grade 1, Grade 2, Grade 3, Grade 4, Grade 5, Grade 6, *Kindergarten, *Mathematics Curriculum

GRADES OR AGES: K-6. SUBJECT MATTER: Mathematics. ORGANIZATION AND PHYSICAL APPEARANCE: The guide is divided into several chapters. The central and longest chapter, which outlines course content, is further subdivided into 15 units, one for each of 15 content objectives. This chapter is in list form. The guide is offset printed and staple-bound with a paper cover. OBJECTIVES AND ACTIVITIES: The central chapter lists 15 mathematical concepts such as numeration systems, ratio and proportion, size and shape, or measurement. A list of related behavioral objectives for each concept at each grade level is then presented. No specific activities are mentioned, although one short chapter gives general guidelines on developing problem-solving situations. INSTRUCTIONAL MATERIALS: A short bibliography lists several references for each chapter. STUDENT ASSESSMENT: A chapter on evaluation and testing gives guidelines for developing tests and choosing appropriate methods for different grade levels. (RT)

1837 ED 049 752
Starkweather, Ann, Comp.
Instructional Objectives for a Junior College Course in Introduction to Mathematical Thinking.
California Univ., Los Angeles. ERIC Clearinghouse for Junior Coll. Information.
Pub Date—Jun 71
Note—15p.
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—*Behavioral Objectives, *Mathematical Concepts, *Mathematics, *Mathematics Instruction, *Two Year Colleges

These instructional objectives have been selected from materials submitted to the Curriculum Laboratory of the Graduate School of Education at UCLA. Arranged by major course goals, these objectives are offered simply as samples that may be used where they correspond to the skills, abilities, and attitudes instructors want their students to acquire. These objectives may also serve as models for assisting instructors to translate other instructional units into specific measurable terms. For other objectives in related courses see: ED 033 683 (College Algebra); ED 033 687 (Calculus and Analytic Geometry); ED 033 698 (Geometry); JC 710 120 (College Mathematics); and JC 710 129 (Intermediate Algebra). (MB)

1838 ED 049 751
Starkweather, Ann, Comp.
Instructional Objectives for a Junior College Course in Intermediate Algebra.
California Univ., Los Angeles. ERIC Clearinghouse for Junior Coll. Information.
Pub Date—Jun 71
Note—13p.
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—*Algebra, *Behavioral Objectives, *Mathematics, *Mathematics Instruction, *Two Year Colleges

These instructional objectives have been selected from materials submitted to the Curriculum Laboratory of the Graduate School of Education at UCLA. Arranged by major course goals, these objectives are offered simply as samples that may be used where they correspond to the skills, abilities, and attitudes instructors want their students to acquire. These objectives may also serve as models for assisting instructors to translate other instructional units into specific measurable terms. For other objectives in related courses see: ED 033 683 (College Algebra); ED 033 678 (Calculus and Analytic Geometry); ED 033 698 (Geometry); JC 710 120 (College Mathematics); and JC 710 130 (Introduction to Mathematical Thinking). (MB)

1839 ED 049 743
Starkweather, Ann, Comp.
Instructional Objectives for a Junior College Course in Computer Appreciation.
California Univ., Los Angeles. ERIC Clearinghouse for Junior Coll. Information.
Pub Date—Jun 71
Note—7p.
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—*Behavioral Objectives, *Computer Oriented Programs, *Computer Science, *Two Year Colleges

These instructional objectives have been selected from materials submitted to the Curriculum Laboratory of the Graduate School of Education at UCLA. Arranged by major course goals, these objectives are offered simply as samples that may be used where they correspond to the skills, abilities, and attitudes instructors want their students to acquire. These objectives may also serve as models for assisting instructors to translate other instructional units into specific measurable terms. (MB)

1840 ED 049 742
Starkweather, Ann, Comp.
Instructional Objectives for a Junior College Course in College Mathematics.
California Univ., Los Angeles. ERIC Clearinghouse for Junior Coll. Information.
Pub Date—Jun 71
Note—32p.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Behavioral Objectives, *College Mathematics, *Mathematics, *Mathematics Instruction, *Two Year Colleges

These instructional objectives have been selected from materials submitted to the Curriculum Laboratory of the Graduate School of Education at UCLA. Arranged by major course goals, these objectives are offered simply as samples that may be used where they correspond to the skills, abilities, and attitudes instructors want their students to acquire. These objectives may also serve as models for assisting instructors to translate other instructional units into specific measurable terms. For other objectives in related courses see: ED 033 683 (College Algebra); ED 033 687 (Calculus and Analytic Geometry); ED 033 698 (Geometry); JC 710 129 (Intermediate Algebra); and JC 710 130 (Introduction to Mathematical Thinking). (MB)

1841 ED 047 940
Cook, J. Marvin
An Individualized Module for Specific Performance Objectives in Sets, Non-Metric Geometry and Relations.
Maryland Univ., Baltimore. Div. of Education.
Pub Date—Dec 69
Note—38p.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Algebra, *Graphs, Individualized Instruction, Inequalities, Instruction, *Instructional Materials, Mathematics, Objectives, *Secondary School Mathematics

This booklet is a sample activity from an individualized instruction unit in mathematics. Agreement between the performance specified in the units' objectives, the performance taught in the instruction activity, and performance required on the posttest was a key criterion during the development of this material. The student is told what he is expected to be able to do at the end of the activity, and how the particular activity relates to the entire instructional unit. The material presented deals with the solution of linear equations and the graphing of linear inequalities. (Author/RS)

1842 ED 036 439
Mathematics Guidelines for Indiana Schools K-12.
Indiana State Dept. of Public Instruction, Indianapolis.
Pub Date—69
Note—104p.
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—*Curriculum Development, *Curriculum Evaluation, Curriculum Guides, Educational Objectives, *Elementary School Mathematics, Mathematics Education, *Secondary School Mathematics

This publication is a mathematics curriculum guide for the schools in the state of Indiana. Its purpose is to assist local school districts in the evaluation of existing mathematics curricula and to promote the development of better mathematics programs at all grade levels. This guide offers philosophies of elementary and secondary mathematics instruction as well as objectives in teaching mathematics. Elementary performance objectives are organized in terms of the unifying concepts which appear throughout the elementary school mathematics program. Secondary performance objectives are presented in terms of specific course objectives. A guide for textbook selection, a checklist for evaluating textbooks, and teacher and student bibliographies are also included. (FL)

1843 ED 035 568
Alkin, Marvin C.
Mathematics, K-3, Instructional Objectives Exchange.
California Univ., Los Angeles. Center for the Study of Evaluation.
Spons Agency—Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No.—BR-6-1646
Pub Date—[69]
Note—190p.
EDRS Price - MF01/PC08 Plus Postage.
Descriptors—*Educational Objectives, *Elementary School Mathematics, *Evaluation, Grade 1, Grade 2, Grade 3, Kindergarten, *Mathematical Concepts, Testing

This collection contains one hundred seventy-four objectives and evaluation items for mathematics grades kindergarten through three. The objectives and measurement items were developed by the Instructional Objectives Exchange (IOX) staff and formulated from curricular material submitted by teachers, schools, and school districts. To date, these materials have not been used in the classroom nor have they been subjected to quality control procedures. Both the behavior aspect and the content of each objective have been selected so that the student is required to learn processes and concepts which are essential to the study of mathematics. Some objectives require the student to do no more than recall knowledge, while others require him to apply his knowledge or analyze problems. Most objectives are accompanied by four sample items which are designed to assess the student's acquisition of the desired behavior. Objectives are arranged according to ascending grade level and are organized into the following categories: sets; numbers; numerals and numeration systems; operations and their properties; measurement; geometry; relations; functions and graphs; probability and statistics; applications and problem solving; and mathematical sentences, order and logic. (FL)

1844 ED 035 567
Alkin, Marvin C.
Mathematics, 7-9, Instructional Objectives Exchange.
California Univ., Los Angeles. Center for the Study of Evaluation.
Spons Agency—Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No.—BR-6-1646
Pub Date—[69]
Note—282p.
EDRS Price - MF01/PC12 Plus Postage.
Descriptors—*Educational Objectives, *Evaluation, Grade 7, Grade 8, Grade 9, *Mathematical Concepts, Mathematics, *Secondary School Mathematics, Testing

This publication is a collection of two hundred sixty-five objectives and evaluation items for mathematics grades seven through nine. The objectives and measurement items were developed by the Instructional Objectives Exchange (IOX) staff and formulated from curricular material submitted by teachers, schools, and school districts. At present, these materials have not been used in the classroom nor have they been subjected to quality control procedures. Both the behavior aspect and the content of each objective have been selected so that the student is required to learn processes and concepts which are essential to the study of mathematics. Some objectives require the student to do no more than recall knowledge, while others require him to apply his knowledge or analyze problems. Most objectives are accompanied by four sample items which are designed to assess the student's acquisition of the desired behavior. Objectives are arranged according to ascending grade level and are organized into the following categories: sets; numbers; numerals and numeration systems; operations and their properties; measurement; geometry; relations, functions and graphs; probability and statistics; applications and problem solving; and mathematical sentences, order and logic. (FL)

1845 ED 034 702
Alkin, Marvin C. And Others
Mathematics 4-6, Instructional Objectives Exchange.
California Univ., Los Angeles. Center for the Study of Evaluation.
Spons Agency—Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No.—BR-6-1646
Note—250p.
EDRS Price - MF01/PC10 Plus Postage.
Descriptors—Arithmetic, *Elementary School Mathematics, *Evaluation, Geometry, *Measurement Objectives, *Objectives, *Test Construction

This collection contains 233 objectives and related evaluation items for mathematics-grades four to six. The following categories are included - (1) sets, (2) numbers, numerals, and numeration systems, (3) operations and their properties, (4) measurement, (5) geometry, (6) relations, functions and graphs, (7) probability and statistics, (8) applications and problem solving, and (9) mathematical sentences, order and logic. Each objective consists of four elements - (1) the objective, (2) measurement items, (3) means for judging the adequacy of student responses, and (4) an IOX rating. Each objective is stated in operational terms, and is identified by a Category and a Sub-Category, which serve to limit and define it. Finally, the majority of the objectives are accompanied by four sample items, each of which is designed to test the student's acquisition of the desired behavior. (RP)

1846 ED 033 698
Capper, Michael R., Comp.
Instructional Objectives for a Junior College Course in Geometry.
California Univ., Los Angeles. ERIC Clearinghouse for Junior Coll. Information.
Pub Date—Nov 69
Note—34p.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Behavioral Objectives, *Geometry, *Two Year Colleges
See JC 690 392 above.

1847 ED 033 687
Capper, Michael R., Comp.
Instructional Objectives for a Junior College Course in Calculus and Analytical Geometry.
California Univ., Los Angeles. ERIC Clearinghouse for Junior Coll. Information.
Pub Date—Nov 69
Note—77p.
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Analytic Geometry, *Behavioral Objectives, *Calculus, *Two Year Colleges
See JC 690 392 above. [Not available in hard copy because of marginal reproducibility of original.]

1848 ED 033 683
Capper, Michael R., Comp.
Instructional Objectives for a Junior College Course in College Algebra.
California Univ., Los Angeles. ERIC Clearinghouse for Junior Coll. Information.
Pub Date—Nov 69
Note—75p.
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Algebra, *Behavioral Objectives, *Two Year Colleges
See JC 690 392 above.

1849 ED 017 454
SHARPE, GLYN H.
SOME BEHAVIORAL OBJECTIVES FOR ELEMENTARY SCHOOL MATHEMATICS PROGRAMS.
Colorado State Dept. of Education, Denver.
Pub Date—AUG66
Note—30P.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Arithmetic, Behavioral Objectives, *Educational Objectives, *Elementary School Mathematics, *Evaluation, Geometry, *Mathematics, Objectives

THIS PUBLICATION OUTLINES SOME OF THE TERMINAL BEHAVIORAL OBJECTIVES OF THE ELEMENTARY MATHEMATICS INSTRUCTIONAL PROGRAM. INSTRUCTIONAL OBJECTIVES WHICH SPECIFY EXPLICITLY WHAT SKILLS PUPILS HAVE MASTERED ARE INDICATED FOR MANY OF THE TOPICS OF MATHEMATICS. FOR EACH OBJECTIVE, AT LEAST ONE EXAMPLE IS GIVEN TO CLARIFY THE BEHAVIORAL CRITERION WHICH DETERMINES WHEN THAT OBJECTIVE HAS BEEN REACHED BY THE PUPIL. CHECKLISTS OF COMPETENCIES FOLLOW OPERATIONAL DEFINITIONS OF MATHEMATICAL CONCEPTS TO SHOW THE RELATIONSHIP BETWEEN THE BEHAVIORAL OBJECTIVE OF AN EXERCISE AND THE TASKS REQUIRED OF THE CHILD. EACH CHECKLIST IS DESIGNED FOR EVALUATING GOAL ATTAINMENT IMMEDIATELY AFTER EACH EXERCISE. (RP)

OPERATIONS

1900 ED 141 168
Rogers, Sandra
Laboratory Mathematics. Curriculum Booklet II - Whole Numbers.
Anderson County School District 2, Honea Path, S.C.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—77
Note—44p.; For related documents, see SE 022 692-699; Not available in hard copy due to marginal legibility of original document
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Educationally Disadvantaged, •Elementary School Mathematics, Elementary Secondary Education, Experiential Learning, •Fundamental Concepts, Individualized Instruction, •Instructional Materials, Laboratory Procedures, Low Achievement, Mathematics Education, •Units of Study, •Whole Numbers, Worksheets
Identifiers—Elementary Secondary Education Act Title III

This booklet is one of a set of five booklets which comprise the basic curriculum for "Mathematics Laboratories for Disadvantaged Students," a nationally validated Title III ESEA project. This publication provides evaluation materials and student materials related to whole numbers. Topics included are place value, addition, subtraction, multiplication, and division. The project was designed for middle school students (grades 5-8). (RH)

1901 ED 133 953
Basic Number Facts: 1 2 3.
Florida Learning Resources System/CROWN, Jacksonville.
Note—44p.
Pub Type— Guides - General (050)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—•Arithmetic, Elementary Education, •General Education, Instructional Materials, •Learning Activities, •Sequential Approach, Teaching Guides

The teaching guide outlines developmentally sequenced activities for learning the basic computational skills. Sections cover sequential steps for the addition, subtraction, multiplication, and division of whole numbers; information on developing building kits and sample worksheets; the use of number sheets (sample sheets are provided); and the use of teaching machines for math. The bulk of the document focuses on individual and group activities for learning number facts. Each activity or game is described in terms of materials needed, construction of materials (where applicable), and activity directions. Also included is a list of commercial materials. (SBH)

1902 ED 127 193
Bray, Edmund C. Redin, Paul
Multiplication and Motion: MINNEMAST Coordinated Mathematics - Science Series, Unit 25.
Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—71
Note—163p.; For related documents, see SE021201-234; Photographs may not reproduce well
Available from—MINNEMAST, Minnemath Center, 720 Washington Ave., S.E., Minneapolis, MN 55414
Pub Type— Guides - General (050)
EDRS Price - MF01/PC07 Plus Postage.
Descriptors—•Curriculum Guides, Elementary Education, •Elementary School Mathematics, •Elementary School Science, Experimental Curriculum, Graphs, •Interdisciplinary Approach, Learning Activities, Mathematics Education, •Multiplication, Primary Education, Process Education, Science Education, Units of Study
Identifiers—•MINNEMAST, •Minnesota Mathematics and Science Teaching Project

This volume is the twenty-fifth in a series of 29 coordinated MINNEMAST units in mathematics and science for kindergarten and the primary grades. Intended for use by third-grade teachers, this unit guide provides a summary and overview of the unit, a list of materials needed, and descriptions of three groups of activities. The purposes and procedures for each activity are discussed. Examples of questions and discussion topics are given, and in several cases ditto masters, stories for reading aloud, and other instructional materials are included in the book. In this unit, data collected in foot racing and car racing activities are graphed on grids and properties of the graphs are examined. The idea of slope is used to motivate an introduction to multiplication. Multiplication as repeated addition is reviewed, as is the relationship between arrays and multiplication. A "multiplication machine" and cards for use in a multiplication game are provided. (SD)

1903 ED 127 192
Adams, Patricia A., Ed. Nyberg, Luanne, Ed.
Change and Calculations: MINNEMAST Coordinated Mathematics - Science Series, Unit 24.
Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—71
Note—158p.; For related documents, see SE021201-234; Photographs may not reproduce well
Available from—MINNEMAST, Minnemath Center, 720 Washington Ave., S.E., Minneapolis, MN 55414
Pub Type— Guides - General (050)
EDRS Price - MF01/PC07 Plus Postage.
Descriptors—•Algorithms, Computers, •Curriculum Guides, Elementary Education, •Elementary School Mathematics, •Elementary School Science, Experimental Curriculum, •Interdisciplinary Approach, Learning Activities, Mathematics Education, Measurement, Primary Education, Process Education, Science Education, Units of Study
Identifiers—•MINNEMAST, •Minnesota Mathematics and Science Teaching Project

This volume is the twenty-fourth in a series of 29 coordinated MINNEMAST units in mathematics and science for kindergarten and the primary grades. Intended for use by third-grade teachers, this unit guide provides a summary and overview of the unit, a list of materials needed, and descriptions of four groups of lessons and activities. The purposes and procedures for each activity are discussed. Examples of questions and discussion topics are given, and in several cases ditto masters, stories for reading aloud, and other instructional materials are included in the book. This unit covers both computational and measurement ideas. In the two sets of lessons on computation, the class simulates a computer in activities designed to promote understanding of addition and subtraction in a place value system. Measurement activities are related to liquid volume, length and time. Two job booklets, one on pouring and the other on balancing as methods of measurement, provide activities for independent work by students. (SD)

1904 ED 127 181
Blair, Kay W. Edmunds, Polly T.
Interpretations of Addition and Subtraction: MINNEMAST Coordinated Mathematics - Science Series, Unit 13.
Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—71
Note—133p.; For related documents, see SE021201-234
Available from—MINNEMAST, Minnemath Center, 720 Washington Ave., S.E., Minneapolis, MN 55414
Pub Type— Guides - General (050)
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—Basic Skills, •Curriculum Guides, Elementary Education, •Elementary School Mathematics, •Elementary School Science, Experimental Curriculum, •Interdisciplinary Approach, Learning Activities, Mathematics Education, •Number Systems, Primary Education, Process Education, Science Education, Units of Study
Identifiers—•MINNEMAST, •Minnesota Mathematics and Science Teaching Project

This volume is the thirteenth in a series of 29 coordinated MINNEMAST units in mathematics and science for kindergarten and the primary grades. Intended for use by first-grade teachers, this unit guide provides a summary and overview of the unit, a list of materials needed, and descriptions of six groups of lessons. The purposes and procedures for each activity are discussed. Examples of questions and discussion topics are given, and in several cases ditto masters, stories for reading aloud, and other instructional materials are included in the book. This volume begins with a review of addition by joining sets and then introduces addition and subtraction on the number line. The use of the addition slide rule is introduced and problems for practice in addition and subtraction are provided. Properties of addition and subtraction are explored, and place value notation is introduced. (SD)

1905 ED 127 179
Blair, Kay W. Edmunds, Polly T.
Introducing Addition and Subtraction: MINNEMAST Coordinated Mathematics - Science Series, Unit 11.
Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—71
Note—141p.; For related documents, see SE021201-234
Available from—MINNEMAST, Minnemath Center, 720 Washington Ave., S.E., Minneapolis, MN 55414
Pub Type— Guides - General (050)
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—Addition, Basic Skills, •Curriculum Guides, Elementary Education, •Elementary School Mathematics, •Elementary School Science, Experimental Curriculum, •Interdisciplinary Approach, Learning Activities, Mathematics Education, •Number Systems, Primary Education, Process Education, Science Education, Subtraction, Units of Study
Identifiers—•MINNEMAST, •Minnesota Mathematics and Science Teaching Project

This volume is the eleventh in a series of 29 coordinated MINNEMAST units in mathematics and science for kindergarten and the primary grades. Intended for use by first-grade teachers, this unit guide provides a summary and overview of the unit, a list of materials needed, and descriptions of five groups of lessons. The purposes and procedures for each activity are discussed. Examples of questions and discussion topics are given, and in several cases ditto masters, stories for reading aloud, and other instructional materials are included in the book. In this unit, the operations of addition and subtraction of whole numbers are introduced and developed. Section 1 introduces the "a+b" notation and related addition to the joining of sets. In section two, subtraction is developed using missing addend problems. Later sections concern (3) grouping, even and odd numbers, and arrays; (4) introduction to the number line; and (5) numerals through 99. Three supplementary games are also included. (SD)

1906 ED 123 084
Cosler, Norma, Ed.
Individualized Math Problems in Whole Numbers. Oregon Vo-Tech Mathematics Problem Sets.
Oregon Math Education Council, Salem.; Oregon State Dept. of Education, Salem. Career and Vocational Education Section.
Pub Date—74
Note—125p.; For related documents, see SE 020 628-647; Occasional Marginal Legibility
Available from—Continuing Education Publications, P.O. Box 1491, Portland, Oregon 97207
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Individualized Instruction, •Instructional Materials, Mathematical Applications, Mathematics Education, Number Concepts, •Problem Sets, Secondary Education, •Secondary School Mathematics, •Vocational Education, •Whole Numbers
Identifiers—•Oregon Vo Tech Math Project

This is one of eighteen sets of individualized mathematics problems developed by the Oregon Vo-Tech Math Project. Each of these probiem packages is organized around a mathematical topic and contains problems related to diverse vocations. Solutions are provided for all problems. Problems in this set require computations involving whole numbers. Problems are drawn from nineteen vocational areas: clerical work; aviation mechanics, diesel mechanics, wood products, wastewater technology, forestry, fire and police science, agriculture, forest products, nursing, industrial, electrical and hydraulics technology, marketing, drafting, machine tools, industrial mechanics, auto mecahnics, construction, real estate, and food processing. (SD)

1907 ED 123 080
Cosler, Norma, Ed.
Individualized Math Problems in Simple Equations. Oregon Vo-Tech Mathematics Problem Sets.
Oregon Math Education Council, Salem.; Oregon State Dept. of Education, Salem. Career and Vocational Education Section.
Pub Date—74
Note—197p.; For related documents, see SE 020 628-648; Occasional Marginal Legibility
Available from—Continuing Education Publications, P.O. Box 1491, Portland, Oregon 97207
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Algebra, Individualized Instruction, *Instructional Materials, Mathematical Applications, Mathematics Education, *Problem Sets, Secondary Education, *Secondary School Mathematics, *Vocational Education
Identifiers—*Equations (Mathematics), *Oregon Vo Tech Math Project

This is one of eighteen sets of individualized mathematics problems developed by the Oregon Vo-Tech Math Project. Each of these problem packages is organized around a mathematical topic and contains problems related to diverse vocations. Solutions are provided for all problems. Problems in this volume require solution of linear equations, systems of linear equations, and quadratic equations. Problems are drawn from fifteen vocational areas: agriculture, industrial, electrical and hydraulics technology, forestry, drafting, clerical work, aviation mechanics, diesel mechanics, electronics, marketing, industrial mechanics, fire and police science, wastewater technology, food processing, forest products, and auto mechanics. (SD)

1908 ED 120 546
Herr, Nicholas K.
Basic Mathematics Operations–A Math Practice Booklet.
Rutgers, The State Univ., New Brunswick, N.J. Curriculum Lab.
Spons Agency—New Jersey State Dept. of Education, Trenton. Div. of Vocational Education.
Report No.—VT-102-619
Pub Date—Feb 76
Note—37p.; For related documents, see CE 006 940-943
Available from—New Jersey Vocational-Technical Curriculum Laboratory, Rutgers-The State University, Building 4103 Kilmer Campus, New Brunswick, New Jersey 08903 ($1.25)
Pub Type— Books (010)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Arithmetic, Basic Skills, Educational Media, Guides, *Mathematical Applications, Mathematics Curriculum, Mathematics Materials, *Remedial Mathematics, *Secondary Education, Tests, *Vocational Education, Vocational High Schools, *Workbooks

Intended for use in vocational high schools, the workbook is designed to help the student understand and develop skill in performing the four basic arithmetical operations: addition, subtraction, multiplication, and division. Also stressed is the correct reading and writing of numbers. The booklet consists of explanatory text, arithmetic problems, problems with practical applications (written as job assignments), puzzles, and quizzes. (RG)

1909 ED 098 060
Evans, Diane
Natural Numbers, Whole Numbers, and Integers. Learning Activity Package, Pre-Algebra, LAP 7.
Ninety Six High School, S. C.
Pub Date—[73]
Note—13p.; See ED 069 503 for other pre-algebra LAPs
Pub Type— Guides - General (050)
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Algebra, Curriculum, *Individualized Instruction, *Instructional Materials, *Learning Modules, Mathematics Education, Number Concepts, *Number Systems, Objectives, *Secondary School Mathematics, Teacher Developed Materials, Teaching Guides, Units of Study

This teacher-prepared Learning Activity Package (LAP) for individualized instruction in topics in prealgebra covers the natural numbers, whole numbers, and integers. The unit contains a rationale for the material, a list of behavioral objectives, a list of resources including texts (with reading assignments and problem sets specified) and tape recordings, a problem set for student self-evaluation, suggestions for advanced study, and references. (DT)

1910 ED 094 991
Pedoe, Daniel Pedoe, Mary
Mathematics for the Elementary School, Unit 12, Addition and Subtraction.
Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—65
Note—95p.
Pub Type— Guides - General (050)
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—*Addition, Curriculum, *Elementary School Mathematics, Experiential Learning, Instruction, *Instructional Materials, Number Concepts, *Subtraction, *Teaching Guides, Units of Study, Worksheets
Identifiers—MINNEMAST, *Minnesota Mathematics and Science Teaching Project, Nomographs, Number Operations, Properties (Mathematics)

The Minnesota School Mathematics and Science Teaching (MINNEMAST) Project is characterized by its emphasis on the coordination of mathematics and science in the elementary school curriculum. Units are planned to provide children with activities in which they learn various concepts from both subject areas. Each subject is used to support and reinforce the other where appropriate, with common techniques and concepts being sought and exploited. Content is presented in story fashion. The stories serve to introduce concepts and lead to activities. Imbedded in the pictures that accompany the stories are examples of the concepts presented. This unit introduces the child to various tools which can help him to visualize and understand the operation of finding a sum or a missing addend. Extensive manipulations on a number line and with a simple slide rule are prescribed in order to help the child gain a concrete feeling for addition on the number line. The communtative and associative properties of addition are developed from these number line activities. Exercises with nomographs provide additional work on the above topics. Worksheets and commentaries to the teacher are provided and additional activities are suggested. (JP)

1911 ED 090 002
Thompson, Russ Fuller, Albert
Basic Math I, Package 01-03, Multiplication and Division of Whole Numbers.
Arnold Public Schools, Nebr.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—72
Note—60p.; For related documents, see SE 017 553, 554, and SE 017 556 through 575
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Algorithms, Division, Grade 9, *Instructional Materials, Multiplication, *Number Concepts, Objectives, *Secondary School Mathematics, *Teaching Guides, *Tests, Whole Numbers
Identifiers—Elementary Secondary Education Act Title III, Estimation (Mathematics), *General Mathematics, Properties (Mathematics)

This teacher guide is part of the materials prepared for an individualized program for ninth-grade algebra and basic mathematics students. Materials written for the program are to be used with audiovisual lessons recorded on tape cassettes. For an evaluation of the program, see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are included for each topic covered. The work in this package provides practice with multiplication and division with whole numbers. The commutative and associative properties for multiplication are reviewed and problems involving the distributive law are presented. Work is provided on multiplication by 10, 100 and 1000 and on estimating the answer to division problems. This work was prepared under an ESEA Title III contract. (JP)

1912 ED 090 001
Thompson, Russ Fuller, Albert
Basic Math I, Package 01-02, Addition and Subtraction of Whole Numbers.
Arnold Public Schools, Nebr.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—72
Note—59p.; For related documents, see SE 017 553 and SE 017 555 through 575
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Addition, Algorithms, Grade 9, Individualized Instruction, *Instructional Materials, *Number Concepts, Objectives, *Secondary School Mathematics, Subtraction, *Teaching Guides, *Tests, Whole Numbers
Identifiers—Elementary Secondary Education Act Title III, Estimation (Mathematics), *General Mathematics

This teacher guide is part of the materials prepared for an individualized program for ninth-grade algebra and basic mathematics students. Materials written for the program are to be used with audiovisual lessons recorded on tape cassettes. For an evaluation of the program, see ED 086 54[illegible]. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are included for each topic covered. The work in this package provides practice with addition and subtraction of whole numbers, reviews the commutative and associative properties for addition and provides work on estimation of solutions to problems. This work was prepared under an ESEA Title III contract. (JP)

1913 ED 079 125
Activities with Whole Numbers, Mathematics (Experimental): 5212.73.
Dade County Public Schools, Miami, Fla.
Pub Date—71
Note—13p.; An Authorized Course of Instruction for the Quinmester Program
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Algorithms, Behavioral Objectives, Computation, Curriculum, Instruction, Mathematics Education, *Objectives, *Secondary School Mathematics, *Teaching Guides, Tests, *Whole Numbers
Identifiers—*Quinmester Program

Designed for the student who has acquired basic computational skills with non-negative rational numbers, this guidebook delineates minimum course content to further develop students' computational skills with whole numbers. Place value and estimation are also covered. General goals, performance objectives, a course outline, suggested teaching strategies, sample test items, and a list of six references are provided. The quin is based on chapters from the text, "Essentials of Mathematics 2", by Sobel, Maletsky and Hill. (DT)

1914 ED 072 980
Wyks, Hollis W. Austin, Robert J.
Understanding Math - Part I.
Marie H. Katzenbach School for the Deaf, West Trenton, N.J.; New Jersey State Dept. of Education, Trenton. Div. of Vocational Education.; Rutgers, The State Univ., New Brunswick, N.J. Curriculum Lab.
Pub Date—Sep 71
Note—165p.
EDRS Price - MF01/PC07 Plus Postage.
Descriptors—*Algorithms, *Arithmetic, *Deafness, *Instructional Materials, Mathematics Education, Number Concepts, *Remedial Mathematics, *Secondary School Mathematics, *Special Education, Whole Numbers

This is the first workbook-text in a two-part series written for deaf students. It is remedial in nature, aimed at the secondary level, and covers addition, subtraction, multiplication, and division of whole numbers. The use of the number 10 in explaining the concepts presented is stressed throughout. For the second workbook, see SE 015 828, and for the teacher's guide, see SE 015 829. (DT)

1915 ED 069 528
Crook, Edwin F.
Equa-formu-alities (Equations - Formulas - Inequalities), Teacher's Guide.
Oakland County Schools, Pontiac, Mich.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—Nov 70
Grant—OEG-68-05635-0
Note—149p.; Revised Edition

EDRS Price - MF01/PC06 Plus Postage.
Descriptors—Curriculum, Graphs, *Inequalities, Instruction, *Instructional Materials, Low Ability Students, Mathematical Formulas, Mathematics Education, Objectives, *Secondary School Mathematics, *Teaching Guides, Units of Study
Identifiers—Elementary Secondary Education Act Title III, Equations (Mathematics)

This guide to accompany "Equa-formu-alities" contains all of the student information in SE 015 338 plus supplemental teacher materials. After each section there is a listing of terminal objectives, discussion questions, and suggested approaches. Also included is a list of necessary equipment and teaching aids. Related documents are SE 015 334 - SE 015 338 and SE 015 340 - SE 015 347. This work was prepared under an ESEA Title III contract. (LS)

1916 ED 069 527
Crook, Edwin F.
Equa-formu-alities (Equations - Formulas - Inequalities).
Oakland County Schools, Pontiac, Mich.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—Nov 70
Grant—OEG-68-05635
Note—78p.; Revised Edition
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—Curriculum, Graphs, *Inequalities, Instruction, *Instructional Materials, Low Ability Students, Mathematical Formulas, Mathematics Education, Objectives, *Secondary School Mathematics, Units of Study, Worksheets
Identifiers—Elementary Secondary Education Act Title III, Equations (Mathematics)

This instructional unit is designed to serve as an introduction to algebra. True and false mathematical sentences are first presented with open sentences to introduce the use of a variable. Inequalities, formulas, and graphs are the next major concepts discussed. The unit concludes with six projects that attempt to tie the major concepts together. A teacher's guide is also available. Related documents are SE 015 334 - SE 015 337 and SE 015 339 - SE 015 347. This work was prepared under an ESEA Title III contract. (LS)

1917 ED 063 124
Cuevas, Gilberto J. Golden, Edward I.
Mathematics: Whole Number Action.
Dade County Public Schools, Miami, Fla.
Pub Date—71
Note—42p.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Arithmetic, Curriculum, Instruction, Instructional Materials, Laboratories, Mathematical Applications, Mathematics Education, *Objectives, *Secondary School Mathematics, *Teaching Guides, Units of Study
Identifiers—*Quinmester Program

Described is a basic course in whole numbers involving a laboratory approach with emphasis on applications, designed for the student whose arithmetic skills need reinforcing. After lists of overall goals, scope, and performance objectives, the guide gives suggested strategies, materials, and references for 41 topics arranged under seven headings. Also included is a sample test and a bibliography of state-adopted and other textbooks. (MM)

1918 ED 020 896
FOLEY, JACK L.
ACTION WITH WHOLE NUMBERS.
Pub Date—AUG67
Note—59P.
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Addition, Arithmetic, Division, *Elementary School Mathematics, Extracurricular Activities, *Instructional Materials, Low Ability Students, *Mathematics, Multiplication, Subtraction
Identifiers—Elementary Secondary Education Act Title III

THIS BOOKLET, ONE OF A SERIES, HAS BEEN DEVELOPED FOR THE PROJECT, A PROGRAM FOR MATHEMATICALLY UNDERDEVELOPED PUPILS. A PROJECT TEAM, INCLUDING INSERVICE TEACHERS, IS BEING USED TO WRITE AND DEVELOP THE MATERIALS FOR THIS PROGRAM. THE MATERIALS DEVELOPED IN THIS BOOKLET INCLUDE (1) ADDITION AND SUBTRACTION WITH WHOLE NUMBERS, (2) PATTERNS AND PROCEDURES IN MULTIPLICATION, AND (3) DIVISION AS A PROCESS OF FINDING A MISSING FACTOR. ACCOMPANYING THESE BOOKLETS WILL BE A "TEACHING STRATEGY BOOKLET" WHICH WILL INCLUDE A DESCRIPTION OF TEACHER TECHNIQUES, METHODS, SUGGESTED SEQUENCES, ACADEMIC GAMES, AND SUGGESTED VISUAL MATERIALS. (RP)

1919 ED 020 893
FOLEY, JACK L.
DIVISIBILITY TESTS.
Pub Date—AUG67
Note—34P.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Arithmetic, Division, *Elementary School Mathematics, Extracurricular Activities, Instructional Materials, Low Ability Students, *Mathematics
Identifiers—Elementary Secondary Education Act Title III

THIS BOOKLET, ONE OF A SERIES, HAS BEEN DEVELOPED FOR THE PROJECT, A PROGRAM FOR MATHEMATICALLY UNDERDEVELOPED PUPILS. A PROJECT TEAM, INCLUDING INSERVICE TEACHERS, IS BEING USED TO WRITE AND DEVELOP THE MATERIALS FOR THIS PROGRAM. THE MATERIALS DEVELOPED IN THIS BOOKLET INCLUDE SUCH CONCEPTS AS (1) DIVISIBILITY TESTS, (2) CHECKING THE FUNDAMENTAL OPERATIONS BY CASTING OUT NINES AND ELEVENS, AND (3) APPLICATION OF DIVISIBILITY. ACCOMPANYING THESE BOOKLETS WILL BE A "TEACHING STRATEGY BOOKLET" WHICH WILL INCLUDE A DESCRIPTION OF TEACHER TECHNIQUES, METHODS, SUGGESTED SEQUENCES, ACADEMIC GAMES, AND SUGGESTED VISUAL MATERIALS. (RP)

1920 ED 020 885
FOLEY, JACK L.
SETS, SUB-SETS AND OPERATIONS.
Pub Date—NOV67
Note—37P.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Arithmetic, *Elementary School Mathematics, Extracurricular Activities, *Instructional Materials, Low Ability Students, *Mathematics, *Set Theory
Identifiers—Elementary Secondary Education Act Title III

THIS BOOKLET, ONE OF A SERIES, HAS BEEN DEVELOPED FOR THE PROJECT, A PROGRAM FOR MATHEMATICALLY UNDERDEVELOPED PUPILS. A PROJECT TEAM, INCLUDING INSERVICE TEACHERS, IS BEING USED TO WRITE AND DEVELOP THE MATERIALS FOR THIS PROGRAM. THE MATERIALS DEVELOPED IN THIS BOOKLET INCLUDE (1) RECOGNIZING SETS AND THEIR MEMBERS, (2) EQUIVALENT SETS AND EQUAL SETS, (3) FINITE AND INFINITE SETS, (4) OPERATIONS WITH SETS, (5) PICTURING SET RELATIONSHIPS, AND (6) SUBSETS AND THEIR COUNT. ACCOMPANYING THESE BOOKLETS WILL BE A "TEACHING STRATEGY BOOKLET" WHICH WILL INCLUDE A DESCRIPTION OF TEACHER TECHNIQUES, METHODS, SUGGESTED SEQUENCES, ACADEMIC GAMES, AND SUGGESTED VISUAL MATERIALS. (RP)

PERCENT/RATIO AND PROPORTION

2000 ED 183 409
Andersen, Lyle And Others
Making Comparisons: Ratios. Topical Module for Use in a Mathematics Laboratory Setting.
Regional Center for Pre-Coll. Mathematics, Denver, Colo.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—73
Grant—NSF-GW-7720
Note—39p.; For related documents, see SE 030 304-322; Contains occasional light and broken type
Pub Type— Guides - Classroom - Learner (051) — Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Activities, Calculators, Computer Oriented Programs, *Learning Laboratories, Manipulative Materials, Mathematics Curriculum, *Mathematics Instruction, *Ratios (Mathematics), Secondary Education, *Secondary School Mathematics, Worksheets

The objectives of this module on making comparisons and ratios include using ratios to compare sets of objects and expressing ratios as decimals or fractions in lowest terms. The module provides six experiments. An envelope of manipulatives accompanies each of the first three experiments. The fourth experiment requires a multispeed bicycle. The fifth experiment requires the building of a gearboard. As an optional experiment, the student may be involved in small group work with a deck of cards. The module contains three enrichment cards which involve students in "real-life" problem situations. It also contains directions for utilizing a programmable calculator or computer. (Author/MK)

2001 ED 183 400
Trojan, Arthur Zastrocky, Mike
People Patterns: Ratio. Environmental Module for Use in a Mathematics Laboratory Setting.
Regional Center for Pre-Coll. Mathematics, Denver, Colo.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—74
Grant—NSF-GW-7720
Note—17p.; For related documents, see SE 030 304-322
Pub Type— Guides - Classroom - Learner (051) — Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—*Activities, *Learning Laboratories, Mathematics Curriculum, *Mathematics Instruction, Measurement, *Metric System, *Ratios (Mathematics), Secondary Education, *Secondary School Mathematics, Worksheets

The objectives of this module include students being able to: measure using the metric system, determine ratios of different types, and analyze a problem using ratios. Some of the worksheets require the development of ratios from physical activity; others require the development and analysis of ratios using parts of the student's own body. Teaching suggestions are included. (MK)

2002 ED 141 171
Rogers, Sandra
Laboratory Mathematics. Curriculum Booklet V - Percent.
Anderson County School District 2, Honea Path, S.C.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—77
Note—20p.; For related documents, see SE 022 692-699; Not available in hard copy due to marginal legibility of original document
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Decimal Fractions, Educationally Disadvantaged, *Elementary School Mathematics, Elementary Secondary Education, Experiential Learning, *Fundamental Concepts, Individualized Instruction, *Instructional Materials, Laboratory Procedures, *Low Achievement, Mathematics Education, *Percentage, *Units of Study, Worksheets
Identifiers—Elementary Secondary Education Act Title III

This booklet is one of a set of five booklets which comprise the basic curriculum for "Mathematics Laboratories for Disadvantaged Students," a nationally validated Title III ESEA project. This publication provides evaluation materials and student materials related to percents. Topics included are meaning of percent, renaming decimals and percents, renaming fractions and percents, percent of a quantity, and word problems. The project was designed for middle school students (grades 5-8). (RH)

2003 ED 123 078
Cosler, Norma, Ed.
Individualized Math Problems in Percent. Oregon Vo-Tech Mathematics Problem Sets.
Oregon Math Education Council, Salem.; Oregon State Dept. of Education, Salem. Career and Vocational Education Section.
Pub Date—74
Note—176p.; For related documents, see SE 020 628-648; Occasional Marginal Legibility
Available from—Continuing Education Publications, P.O. Box 1491, Portland, Oregon 97207
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Individualized Instruction, *Instructional Materials, Mathematical Applications, Mathematics Education, *Percentage, *Problem Sets, Rational Numbers, Secondary Education, *Secondary School Mathematics, *Vocational Education
Identifiers—*Oregon Vo Tech Math Project

This is one of eighteen sets of individualized mathematics problems developed by the Oregon Vo-Tech Math Project. Each of these problem packages is organized around a mathematical topic and contains problems related to diverse vocations. Solutions are provided for all problems. This volume includes problems concerned with computing percents. Problems are drawn from eighteen vocational areas: agriculture, marketing, food processing, clerical work, forest products, forestry, fire and police science, wood products, wastewater technology, industrial mechanics, machine tools, auto mechanics, electronics, diesel mechanics, drafting, industrial, electrical and hydraulics technology, welding, and real estate. (SD)

2004 ED 090 010
Thompson, Russ Fuller, Albert
Basic Math I, Package 01-11, Ratio and Proportion.
Arnold Public Schools, Nebr.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—72
Note—31p.; For related documents, see SE 017 553 through 562 and SE 017 564 through 575
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Fractions, Grade 9, Individualized Instruction, *Instructional Materials, Number Concepts, Objectives, Percentage, *Ratios (Mathematics), *Secondary School Mathematics, *Teaching Guides, *Tests
Identifiers—Elementary Secondary Education Act Title III, *General Mathematics

This teacher guide is part of the materials prepared for an individualized program for ninth-grade algebra and basic mathematics students. Materials written for the program are to be used with audiovisual lessons recorded on tape cassettes. For an evaluation of the program, see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are included for each topic covered. The work in this package focuses on the relationships between ratio, proportion, rate, percentage and fractions. This work was prepared under an ESEA Title III contract. (JP)

2005 ED 090 008
Thompson, Russ Fuller, Albert
Basic Math I, Package 01-09, Percent.
Arnold Public Schools, Nebr.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—72
Note—30p.; For related documents, see SE 017 553 through 560 and SE 017 562 through 575
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Decimal Fractions, Fractions, Grade 9, Individualized Instruction, *Instructional Materials, Mathematical Applications, Number Concepts, Objectives, *Percentage, *Secondary School Mathematics, *Teaching Guides, *Tests
Identifiers—Elementary Secondary Education Act Title III, *General Mathematics

This teacher guide is part of the materials prepared for an individualized program for ninth-grade algebra and basic mathematics students. Materials written for the program are to be used with audiovisual lessons recorded on tape cassettes. For an evaluation of the program, see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are included for each topic covered. Work in this package includes converting fractions and decimals to percent and back to decimals. Practical application problems dealing with discounts and commissions are presented. This work was prepared under an ESEA Title III contract. (JP)

2006 ED 069 526
Choate, Stuart A.
Activities with Ratio and Proportion, Teacher's Guide.
Oakland County Schools, Pontiac, Mich.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—Sep 70
Grant—OEG-68-05635-0
Note—288p.; Revised Edition
EDRS Price - MF01/PC12 Plus Postage.
Descriptors—Curriculum, Instruction, *Instructional Materials, Low Ability Students, Mathematics Education, Objectives, *Percentage, *Ratios (Mathematics), *Secondary School Mathematics, *Teaching Guides, Units of Study
Identifiers—Elementary Secondary Education Act Title III

This guide to accompany "Activities with Ratio and Proportion," contains all of the student materials in SE 015 336 plus supplemental teacher materials. It includes a listing of terminal objectives, necessary equipment and teaching aids, and resource materials. Answers are given to all problems and suggested approaches and activities are presented for each section. Related documents are SE 015 334 through SE 015 336 and SE 015 338 through SE 015 347. This work was prepared under an ESEA Title III contract. (LS)

2007 ED 069 525
Choate, Stuart A.
Activities with Ratio and Proportion.
Oakland County Schools, Pontiac, Mich.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—Sep 70
Grant—OEG-68-05635-0
Note—135p.; Revised Edition
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—Curriculum, Instruction, *Instructional Materials, Low Ability Students, Mathematics Education, Objectives, *Percentage, *Ratios (Mathematics), *Secondary School Mathematics, Units of Study, Worksheets
Identifiers—Elementary Secondary Education Act Title III

This instructional unit focuses on writing ratios and proportions in problem situations, solutions by means of proportions, and determination of percentages. A number of experiments are suggested and worksheets and discussion questions are included. The activities are oriented toward situations in which the students would probably have had some previous experience. A teacher's guide is also available. Related documents are SE 015 334, SE 015 335, and SE 015 337 through SE 015 347. This work was prepared under an ESEA Title III contract. (LS)

2008 ED 022 952
Rahmlow, Harold F. And Others
Occupational Mathematics; Proportions. Report No. 16-T. Final Report.
Washington State Coordinating Council for Occupational Education, Olympia.; Washington State Univ., Pullman. Dept. of Education.
Spons Agency—Office of Education (DHEW), Washington, D.C.
Bureau No.—BR-7-0031
Pub Date—Jun 68
Grant—OEG-4-7-070031-1626
Note—118p.
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—*Arithmetic, *Fundamental Concepts, *Programed Instructional Materials, *Ratios (Mathematics), *Textbooks, *Vocational Education

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should be able to distinguish between correct and incorrect proportions, solve a proportion for one unknown quantity when given values for the other three, and solve specific problems involving proportions. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975. (EM)

2009 ED 022 947

Rahmlow, Harold F. And Others

Occupational Mathematics; Percentage. Report No. 16-P, Booklet II. Final Report.

Washington State Coordinating Council for Occupational Education, Olympia.; Washington State Univ., Pullman. Dept. of Education.

Spons Agency—Office of Education (DHEW), Washington, D.C.

Bureau No.—BR-7-0031

Pub Date—Jun 68

Grant—OEG-4-7-070031-1626

Note—132p.

EDRS Price - MF01/PC06 Plus Postage.

Descriptors—*Arithmetic, *Fractions, *Percentage, *Programed Instructional Materials, *Textbooks, *Vocational Education

This programed mathematics textbook (Volume II) is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should be able to: (1) convert to a percentage from a fraction of the form a/b, where 0 is less than (a,b) and these are less than 1,000, (2) convert from a percent to a fraction, (3) convert from a decimal to a percentage, (4) convert from a percent to a decimal, and (5) solve percentage problems of the form A=% x Base for A, %, or Base given the other two factors. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975. (EM)

2010 ED 022 946

Rahmlow, Harold F. And Others

Occupational Mathematics; Percentage. Report No. 16-P. Final Report.

Washington State Coordinating Council for Occupational Education, Olympia.; Washington State Univ., Pullman. Dept. of Education.

Spons Agency—Office of Education (DHEW), Washington, D.C.

Bureau No.—BR-7-0031

Pub Date—Jun 68

Grant—OEG-4-7-070031-1626

Note—117p.

EDRS Price - MF01/PC05 Plus Postage.

Descriptors—*Arithmetic, *Fractions, *Percentage, *Programed Instructional Materials, *Textbooks, *Vocational Education

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should be able to: (1) convert to a percentage from a fraction of the form a/b, where 0 is less than (a,b) and these are less than 1,000, (2) convert from a percent to a fraction, (3) convert from a decimal to a percentage, (4) convert from a percent to a decimal, and (5) solve percentage problems of the form A=% x Base for A, %, or Base given the other two factors. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 822-VT 006 909, and VT 006 975. (EM)

2100 ED 177 740

Educational Programs That Work. A Resource of Exemplary Educational Programs Approved by the Joint Dissemination Review Panel Education Division, Department of Health, Education, and Welfare. Sixth Edition.

Far West Lab. for Educational Research and Development, San Francisco, Calif.
Spons Agency—Office of Education (DHEW), Washington, D.C.
Pub Date—79
Contract—300-77-0415
Note—299p.; For a related document, see ED 163 665
Pub Type— Reports - Descriptive (141) — Reference Materials - Directories/Catalogs (132)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Bilingual Education, Career Education, Catalogs, *Demonstration Programs, Early Childhood Education, Educational Administration, *Educational Programs, Elementary Secondary Education, Environmental Education, Inservice Teacher Education, Language Arts, Learning Disabilities, Mathematics Education, Migrant Education, Nontraditional Education, Parent Participation, Preservice Teacher Education, Program Descriptions, Reading Programs, Science Education, Special Education, *Validated Programs, Vocational Education

This catalog is intended to make successful programs and practices available so that interested school districts may adapt and install their key elements. All programs were approved by program offices within their funding agencies and often by state education agencies. All were then carefully scrutinized for quality by the Joint Dissemination Review Panel of the Department of Health, Education, and Welfare. All programs demonstrated convincing evidence of effectiveness. Many programs are products of the National Diffusion Network. This annual catalog includes up-to-date information on all programs that were described in previous editions and over 30 additional programs. The appendix offers several listings of state coordinators of federally funded programs who may be able to assist local schools through technical assistance with new educational practices. (Author/LD)

2101 ED 162 864

Standards for Successful Mathematics Programs.

Maryland State Dept. of Education, Baltimore. Div. of Instruction.
Pub Date—78
Note—25p.; Not available in hard copy due to marginal legibility of original document
Available from—Maryland State Dept. of Education, P.O. Box 8717, BWI Airport, Baltimore, Maryland 21240 (no price quoted)
Pub Type— Books (010)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Curriculum, Educational Facilities, *Educational Improvement, Elementary Secondary Education, *Evaluation Criteria, Instruction, *Mathematics Education, *Standards, Teacher Effectiveness, *Teaching Programs

Twenty-one standards are listed to serve as a guide for the evaluation of a school's mathematics program. The standards are grouped into four categories: (1) instruction; (2) the curriculum and instructional materials; (3) the teacher of mathematics; and (4) physical facilities and equipment. Questions following each standard provide a means by which strengths and needs of present programs may be clearly indicated. Included are sample forms that may be used to record and monitor progress toward a target. (MP)

2102 ED 144 840

Suydam, Marilyn N. Higgins, Jon L.

Activity-Based Learning in Elementary School Mathematics: Recommendations from Research.

ERIC Information Analysis Center for Science, Mathematics, and Environmental Education, Columbus, Ohio.
Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Pub Date—Sep 77
Note—203p.
Available from—Information Reference Center (ERIC/IRC), The Ohio State University, 1200 Chambers Rd., 3rd Floor, Columbus, Ohio 43212 ($3.50)
Pub Type— Reports - Research (143)
EDRS Price - MF01/PC09 Plus Postage.
Descriptors—Annotated Bibliographies, *Elementary School Mathematics, Elementary Secondary Education, *Experiential Learning, Games, Instruction, Laboratories, *Manipulative Materials, *Mathematics Education, *Research Reviews (Publications)

Research conducted in grades K-8 on activity-based teaching approaches, including studies on the use of manipulative materials, is reviewed and synthesized in this report. On the basis of the synthesis, it was concluded that lessons using manipulative materials have a higher probability of producing greater mathematical achievement than do non-manipulative lessons. Use of both manipulative materials and pictorial representations is highly effective; symbolic treatments alone are less effective. The use of materials appears to be effective with children at all achievement levels, ability levels, and socioeconomic levels. Activity-oriented programs and the use of mathematic laboratories can be expected to result in achievement at least as high as when activities are not emphasized. Other conclusions are also presented, plus implications for further research. Implications for classroom practice and five guidelines for those planning projects or selecting programs are presented. (MS)

2103 ED 139 654

National Council of Supervisors of Mathematics Position Paper on Basic Mathematical Skills.

National Council of Supervisors of Mathematics.
Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Pub Date—Jan 77
Note—5p.
Pub Type— Guides - General (050)
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—*Basic Skills, *Curriculum, Educational Policy, Elementary School Mathematics, Elementary Secondary Education, Guidelines, *Instruction, *Mathematics Education, Secondary School Mathematics
Identifiers—National Council of Supervisors of Mathematics

This statement by the National Council of Supervisors of Mathematics includes a definition of "basic skills" in mathematics and a rationale for the position that "basic skills" must include more than computation. Ten basic skill areas are identified and discussed. Basic skills and the student's future, minimum essentials for high school graduation, developing the basic skills, and evaluating and reporting student progress are each considered briefly. (DT)

2104 ED 115 512

Overview and Analysis of School Mathematics, Grades K-12.

Conference Board of the Mathematical Sciences, Washington, D.C. National Advisory Committee on Mathematical Education.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—75
Note—172p.
Available from—Conference Board of the Mathematical Sciences, 2100 Pennsylvania Avenue, N.W., Suite 832, Washington, D.C. 20037 (Single copies available upon request)
Pub Type— Reports - Research (143)
EDRS Price - MF01/PC07 Plus Postage.
Descriptors—*Advisory Committees, *Curriculum, Educational Change, Educational Planning, Elementary Secondary Education, Evaluation, *Instruction, *Mathematics Education, *Reports
Identifiers—Conference Board of the Mathematical Sciences, NACOME, *National Advisory Committee on Math Education

By appointment of the Conference Board of the Mathematical Sciences, a committee was established to investigate the status of mathematical education at the pre-college levels. Drawing on the data gathered and published by the National Assessment of Educational Progress, the National Center for Educational Statistics' survey of course offerings and enrollments at public secondary schools, and the American Institutes for Research's survey concerning computing activities in secondary education, as well as the committee's own studies of statewide objective and testing programs and of elementary school curricula and instruction, the report addresses a broad spectrum of issues. Chapters of the report are devoted to a summary and analysis of the curricular reforms during 1955-1975, identification and discussion of current curricular emphases, analysis of alternative instructional situations and patterns, discussion of teacher education, and statement of recommendations for policy changes as well as for research and development. Two overriding policy recommendations advocate the avoidance of dichotomizing mathematics (e.g., "old" vs. "new") and the commitment to quality mathematical education for all. Suggestions concerning curriculum, teacher education, evaluation, and research are presented in detail. (SD)

2105 ED 114 767

Manzo, Anthony V.

The Math Student/The Math Teacher/The Math Problem.

Pub Date—75
Note—10p.; Paper presented at the Missouri Council of Teachers of Mathematics (October, 1975)
Pub Type— Speeches/Meeting Papers (150)
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Concept Teaching, *Content Area Reading, Elementary Secondary Education, *Mathematics Instruction, *Mathematics Teachers, *Questioning Techniques, Reading Comprehension, Reading Instruction, Reading Skills, *Students, Study Skills
Identifiers—*RQ Procedure

In an examination of the problem of national mathematical illiteracy, the math student, the math teacher, and the math problem are discussed. The math student may have defects, deficiencies, disruptions, and/or differences in the cognitive abilities required to perform a mathematical problem. The math teacher may tend to be less verbal and less socially responsive than other teachers. Math teachers also may have internalized mathematical reasoning and its accompanying numerical coding and notation so that they can hardly understand the primitive state of most students and many adults and thus students tend not to question, but instead accept math as a closed system. The math word problem poses a barrier to learning because of the new words and notations and the complex language and terse sentences. An approach to these problems which involves the student, the teacher, and the problem is the R/Q procedure, a variation of the ReQuest procedure developed by Manzo. The R/Q procedure is a questioning strategy carried out between teacher and student in which they both read each sentence of the problem and then ask each other questions about the problem until the student is ready to solve the problem. (MKM)

2106 ED 106 124

Cooney, Thomas J. And Others

Protocol Materials in Mathematics Education: Selection of Concepts. Report No. 1.

National Center for the Development of Training Materials in Teacher Education, Bloomington, Ind.
Spons Agency—National Center for Improvement of Educational Systems (DHEW/OE), Washington, D. C.
Pub Date—Feb 75
Note—48p.
Pub Type— Reports - Research (143)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Concept Teaching, Curriculum Development, Educational Theories, *Literature Reviews, *Mathematical Concepts, *Mathematics Education, Teacher Education, *Teaching Methods

The basic premise of this report is that in addition to knowledge of subject matter and psychological principles, teachers should have the ability to think about the subject matter and to perform the logical operations used in manipulating it. The basic objects of mathematics instruction are concepts and principles, and, therefore, the focus of this report is the definition of moves and strategies in operating on and teaching these. The "concept of a concept" is discussed, and a taxonomy of concepts defined. Eight types of connotative moves and six types of denotative moves are defined and exemplified. Strategies (sequences of moves) for teaching concepts are then discussed. The nature and importance of principles in mathematics are discussed, and several methods of characterizing principles are compared. Six basic moves for the teaching of principles are identified and associated with key expressions. Rationale for selecting concepts and principles is discussed. (SD)

2107 ED 101 753

Criteria for Instructional Materials Selection. 1975 Adoption.

Florida State Dept. of Education, Tallahassee.
Pub Date—75
Note—19p.
Pub Type— Reference Materials - Bibliographies (131)

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—Algebra, English, *Evaluation Criteria, Geometry, *Guidelines, High Schools, *Instructional Materials, Junior High Schools, Literature, Mathematics, *Media Selection, Middle Schools, Reading, Reading Materials, Reading Material Selection, Secondary Education, *Textbook Selection, Trigonometry

Identifiers—*Florida, Mathematical Analysis

Prepared for use by middle and secondary school teachers and administrators, this document provides guidelines for the selection of instructional materials to be used in the classroom. After presentation of general criteria for the selection of instructional materials in all subjects, selection criteria are given for the English language arts and for mathematics. Specifically, in the English language arts field, individual criteria are given for literature in middle/junior-senior high school and for reading in grades 7-12. Included in the criteria for mathematics materials are algebra I and II, analytic geometry, introductory mathematical analysis, mathematics V, and trigonometry. (DGC)

2108 ED 038 276

Rasmussen, Lore

Creating a Mathematics Laboratory Environment in the Elementary School, Part 1: The Classroom Without Special Equipment.

Philadelphia School District, Pa.
Pub Date—68
Note—27p.

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—*Creative Activities, Curriculum Development, *Discovery Learning, *Elementary School Mathematics, *Instruction, *Laboratory Techniques, Mathematical Applications, Mathematical Concepts, Mathematics

This booklet was written for elementary school teachers who want suggestions of the type of activities suited to a mathematics laboratory. The emphasis is not that of a thorough survey of the available activities. Instead, the author uses selected examples to describe the spirit of a laboratory environment. The suggestions include arrangements of groups, drawing and reading maps, applications of ratio to time problems, graphing student characteristics and finding mathematical ideas of our alphabet. (RS)

2109 ED 032 231

Chaffee, Everett

Guidelines for the Use of Basic and Supplementary Mathematics Textbooks in the Elementary Schools.

Los Angeles City Schools, Calif. Div. of Instructional Planning and Services.
Pub Date—66
Note—54p.

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—*Assignments, *Elementary School Mathematics, *Instructional Materials, Skills, Supplementary Reading Materials, Teacher Effectiveness, *Teaching Guides, *Textbook Content, Textbooks

Identifiers—Course of Study for Elementary Schools, Greater Cleveland Mathematics Program, Los Angeles City Schools CA, Modern Arithmetic Through Discovery

This booklet was prepared to assist teachers of elementary school mathematics in the effective use of the basic and supplementary state-adopted textbooks. Within each grade level, four categories of basic skills and understandings were developed. These were (1) number systems and numeration systems, (2) fundamental operations, (3) measurement, and (4) geometry. In some grade levels, geometry was omitted due to lack of textbook materials. Prerequisites to the skills and understandings are listed, as well as the pages where those topics would be introduced, reviewed, and/or extended. The topics listed represent only a minimum program in elementary school mathematics. (RR)

2124 ED 125 916

Simpson, F. Morgan, Comp.

Examples of Audio-Tutorial Programs in Mathematics.

Pub Date—76
Note—21p.
Pub Type— Reference Materials - Bibliographies (131)

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—Audio Equipment, *Audiovisual Instruction, Elementary Secondary Education, Higher Education, *Individualized Instruction, Instruction, *Instructional Materials, *Mathematics Education, *Tutorial Programs, Tutoring

Identifiers—*Audio Tutorial Instruction

This document lists 119 commercially available sets of audiotapes which deal with topics in mathematics. Some of the tapes listed were designed to accompany film strips; others are associated with workbooks, study guides, or other instructional materials. Each listing provides the name of the tape, a level code, a brief description, and the name of the publisher. Six level codes are used to indicate primary, intermediate, junior high school, senior high school, adult, or college. A list of publishers' addresses is provided. (SD)

PROBABILITY AND STATISTICS

2200 ED 183 408
Andersen, Lyle
Likelihood of Events: Probability. Topical Module for Use in a Mathematics Laboratory Setting.
Regional Center for Pre-Coll. Mathematics, Denver, Colo.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—73
Grant—NSF-GW-7720
Note—39p.; For related documents, see SE 030 304-322
Pub Type— Guides - Classroom - Learner (051) — Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Activities, *Learning Laboratories, Mathematics Curriculum, *Mathematics Instruction, *Probability, Secondary Education, *Secondary School Mathematics, Worksheets

This module introduces the student to a formal study of probability. The lessons progress from elementary notions of least likely to more complex considerations of the probability of occurrence of one or more possible outcomes. Probability is introduced in an empirical sense through experimentation and investigation. In the later experiments, the students are shown how mathematical probability differs from empirical probability. The last three experiments of the module demand some fairly mature thinking on the part of the students. The teacher may prefer to use a classroom setting if these three experiments are used. (Author/MK)

2201 ED 183 401
Zastrocky, Michael Trojan, Arthur
People Patterns: Statistics. Environmental Module for Use in a Mathematics Laboratory Setting.
Regional Center for Pre-Coll. Mathematics, Denver, Colo.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—73
Grant—NSF-GW-7720
Note—27p.; For related documents, see SE 030 304-322
Pub Type— Guides - Classroom - Learner (051) — Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Activities, Graphs, *Learning Laboratories, Mathematics Curriculum, *Mathematics Instruction, Sampling, Secondary Education, *Secondary School Mathematics, Statistical Analysis, Statistical Bias, *Statistics, Worksheets

This module on statistics consists of 18 worksheets that cover such topics as sample spaces, mean, median, mode, taking samples, posting results, analyzing data, and graphing. The last four worksheets require the students to work with samples and use these to compare people's responses. A computer dating service is one result of this work. Teaching suggestions are included. (MK)

2202 ED 183 398
Trojan, Arthur Zastrocky, Mike
People Patterns: Handwriting. Environmental Module for Use in a Mathematics Laboratory Setting.
Regional Center for Pre-Coll. Mathematics, Denver, Colo.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—74
Grant—NSF-GW-7720
Note—22p.; For related documents, see SE 030 304-322
Pub Type— Guides - Classroom - Learner (051) — Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—*Activities, Elementary School Mathematics, Elementary Secondary Education, Graphs, *Handwriting, *Learning Laboratories, *Mathematical Applications, Mathematics Curriculum, *Mathematics Instruction, Measurement, Ratios (Mathematics), *Secondary School Mathematics, Statistics, Worksheets

This module was not meant to make handwriting analysts of students, but to make them aware that mathematics is used in analyzing handwriting. Activities revolve around ratio, mean, mode, measurement and some graphing. Sample spaces are explored and used to gain insight into how people write habitually. (Author/MK)

2203 ED 161 749
Blakeslee, David W. And Others
Probability for Primary Grades, Teacher's Commentary. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—66
Note—139p.; For related document, see SE 025 223; Not available in hard copy due to marginal legibility of original document
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Curriculum, Elementary Education, *Elementary School Mathematics, *Instruction, Mathematics Education, *Probability, *Teaching Guides
Identifiers—*School Mathematics Study Group

This is a manual for teachers using School Mathematics Study Group (SMSG) primary school text materials. The commentary is organized into three parts. The first part contains an introduction and a section on mathematical comments relating to background knowledge needed by the teacher. The second and main part consists of a chapter by chapter commentary of the text. The objectives, vocabulary, materials, and suggested procedures are given for each lesson. The third part suggests probability devices which might be of use. Chapter topics include: (1) certainty and uncertainty; (2) likelihood; (3) combining events; (4) possibilities; (5) combinations; (6) arrangements; (7) probability; and (8) repeated trials. (MP)

2204 ED 161 748
Blakeslee, David W. And Others
Probability for Primary Grades, Student Text. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—66
Note—57p.; For related document, see SE 025 224
Pub Type— Books (010)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Curriculum, Elementary Education, *Elementary School Mathematics, *Instructional Materials, Mathematics Education, *Probability, *Textbooks
Identifiers—*School Mathematics Study Group

This is a School Mathematics Study Group (SMSG) probability text for primary school students. The main goal of the text is to introduce some basic ideas of probability. The text is written at the level of a child's intuitive knowledge of what constitutes "an equal chance" or "a better chance." The authors suggest that there are certain fringe benefits to be derived from the unit: (1) it shows children that mathematics can be fun; (2) it promotes systematic thinking; (3) arithmetical skills may be practiced and reinforced; and (4) it provides opportunities for independent investigations. Chapter topics include: (1) certainty and uncertainty; (2) comparing the likelihood of various events; (3) combining events - this one and that one; (4) combining events - this one or that one; (5) number of possibilities; (6) combinations of two things; (7) combinations of three things or four things; (8) ordered arrangements; (9) arrangements and probability; and (10) repeated trials. (MP)

2205 ED 160 382
Experimental Teaching Unit: Fifth Grade Mathematics.
Far West Lab. for Educational Research and Development, San Francisco, Calif.
Pub Date—74
Note—64p.; For related document, see SE 024 893; Contains marginal legibility in Tables and Graphs
Available from—Far West Laboratory for Educational Research & Development, Teacher Education Div., 1855 Folsom Street, San Francisco, California 94103 (no price quoted)
Pub Type— Guides - General (050)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Elementary Education, *Elementary School Mathematics, Elementary School Teachers, *Instructional Materials, *Learning, *Probability, *Teaching Guides, Units of Study

This unit deals with the concept of probability, the use of probability to make predictions, and procedures to gather and display probability data using graphs. Fractions are used to express probabilities. Instructional objectives for probability and for graphing (circle, bar, and line segment graphs) are contained in the booklet as well as suggested activities for attaining these objectives. Answer sheets are included. (Author/MP)

2206 ED 156 455
Ropes, George H.
Probability in Elementary Schools: A Guide for Teachers.
New York State Education Dept., Albany. Bureau of Mathematics Education.; State Univ. of New York, Albany.
Spons Agency—National Science Foundation, Washington, D.C.; New York State Education Dept., Albany.
Pub Date—Sep 77
Note—56p.
Pub Type— Guides - General (050)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Activity Units, Educational Games, Elementary Education, *Elementary School Mathematics, *Instructional Materials, Mathematical Concepts, Mathematics Education, *Probability, *Teaching Guides

This publication is a response to the need expressed by elementary teachers for a concise introduction to intuitive probability concepts and how they may be presented. Instruction is divided into five concept groups including: (1) basic understandings; (2) the probability of simple events; (3) the probability of compound events; (4) counting; and (5) sampling. Each concept group section contains a discussion of concepts, activities, and classroom games and projects. A bibliography is included. (MN)

2207 ED 146 004
Barnes, Bernis, Ed. And Others
Probability and Statistics.
Institute for Services to Education, Inc., Washington, D.C.
Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Bureau No.—BR-7-0867
Pub Date—70
Contract—OEC-0-8-070867-0001
Note—40p.; Appendix material from ED 084 936; For related documents, see SE 019 970-974; Not available in hard copy due to marginal legibility of original document; Page 29 missing; Best Copy Available
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*College Mathematics, Experiential Learning, Higher Education, *Instructional Materials, Mathematics, Mathematics Education, *Probability, Secondary School Mathematics, *Statistics, *Teaching Guides
Identifiers—*Combinatorics, *Thirteen College Curriculum Program

This teacher's guide to probability and statistics contains three major sections. The first section on elementary combinatorial principles includes activities, student problems, and suggested teaching procedures for the multiplication principle, permutations, and combinations. Section two develops an intuitive approach to probability through activities which study relationship of: intuitive, empirical and theoretical probabilities; simple and compound probabilities. Activities include work with chips, drawing cubes, coin tossing, drawing attribute blocks, and rolling dice. The final section presents an intuitive approach to statistics including activities with random events, random samples, analysis of a random system with two possible outcomes for each simple event. (JW)

2208 ED 143 543
Blakeslee, David W. And Others
Probability for Intermediate Grades. Teacher's Commentary. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—66
Note—200p.; For related document, see SE 023 021; Contains numerous light and broken type
Pub Type— Guides - General (050)
EDRS Price - MF01/PC08 Plus Postage.
Descriptors—*Arithmetic, Elementary Education, *Elementary School Mathematics, Intermediate Grades, *Mathematics, *Probability, *Teaching Guides
Identifiers—*School Mathematics Study Group

This teacher's guide provides background information, lists of needed equipment, suggestions for instruction, and answers to student exercises. The unit is designed for elementary school students as a supplement to other SMSG volumes; it can, however, be used in any program. It is designed to make mathematics enjoyable, promote systematic thinking, practice and reinforce arithmetic skills, and provide opportunity for independent research. (RH)

2209 ED 143 542
Blakeslee, David W. And Others
Probability for Intermediate Grades. Student Text. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—66
Note—116p.; For related document, see SE 023 022
Pub Type— Books (010)
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—*Arithmetic, Elementary Education, *Elementary School Mathematics, *Instructional Materials, Intermediate Grades, Mathematics, *Probability, *Units of Study
Identifiers—*School Mathematics Study Group

This unit is designed for elementary school students in intermediate grades. It is designed to make mathematics enjoyable, promote systematic thinking, practice and reinforce arithmetic skills, and provide opportunity for independent research. The student manual contains twelve lessons with background information and activities. In addition, the appendices contain a number of activities that students can do. No prior background with probability is required. (RH)

2210 ED 143 526
Blakeslee, David W. And Others
Introduction to Probability, Part 2 - Special Topics. Student Text. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—67
Note—211p.; For related document, see SE 023 003; Contains occasional light and broken type
Pub Type— Books (010)
EDRS Price - MF01/PC09 Plus Postage.
Descriptors—Algebra, *Instructional Materials, Junior High Schools, *Mathematics, Number Concepts, *Probability, Secondary Education, *Secondary School Mathematics, Statistics, *Textbooks
Identifiers—*School Mathematics Study Group

This book is designed to introduce the reader to some fundamental ideas about probability. It is assumed that the reader has completed chapters 1 to 7 of SMSG Introduction to Probability, Part 1. While the book is designed for junior high school students, some elementary algebra is required for a number of the exercises. The difficult exercises are marked to assist students and teachers. Chapters included are: (8) Bayes' Formula; (9) Bernoulli Trials; (10) Mathematical Expectation; (11) Bertrand's Ballot Problem; and (12) Markov Chains. Answers to exercises and additional materials are included in the appendices. (RH)

2211 ED 143 525
Blakeslee, David W. And Others
Introduction to Probability, Part 1 - Basic Concepts. Student Text. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—66
Note—155p.; For related document, see SE 023 004; Contains numerous light type
Pub Type— Books (010)
EDRS Price - MF01/PC07 Plus Postage.
Descriptors—Arithmetic, *Instructional Materials, Junior High Schools, *Mathematics, Number Concepts, *Probability, Secondary Education, *Secondary School Mathematics, Statistics, *Textbooks
Identifiers—*School Mathematics Study Group

This book is designed to introduce the reader to some fundamental ideas about probability. The mathematical theory of probability plays an increasingly important role in science, government, industry, business, and economics. An understanding of the basic concepts of probability is essential for the study of statistical methods that are widely used in the behavioral and social, as well as the biological and physical, sciences. The material in this book is written for students at approximately the seventh or eighth grade level. It is presumed that the student has an adequate background in arithmetic. No previous experience in probability is assumed. Parts of the text are in programmed form. Each chapter includes problems and exercises. Chapters include: (1) Introduction; (2) Finding Probabilities; (3) Counting Outcomes; (4) Estimating Probabilities; (5) The Probability of A or B; (6) The Probability of A and B; and (7) Conditional Probability. Discussion of problems and exercises are at the end of the text. (RH)

2212 ED 127 134
Fouch, Daniel J.
Activities in Elementary Probability, Monograph No. 9.
Michigan Council of Teachers of Mathematics.
Spons Agency—Michigan Education Association, East Lansing.
Pub Date—Sep 75
Note—53p.; For monographs 5-8 of this series, see SE020684-687
Available from—MCTM, Box 16124, Lansing, Michigan 48901 ($1.00 each, prepaid)
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Experiential Learning, Instruction, *Instructional Materials, Junior High Schools, *Lesson Plans, Mathematics Education, Mathematics Instruction, *Probability, *Secondary School Mathematics, Secondary Schools, Teaching Guides
Identifiers—*Michigan

This monograph on elementary probability for middle school, junior high, or high school consumer mathematics students is divided into two parts. Part one emphasizes lessons which cover the fundamental counting principle, permutations, and combinations. The 5 lessons of part I indicate the objectives, examples, methods, application, and problems for each concept. Part two consists of a combination of 6 lessons and 17 experiments which deal with probability and its applications. The experiments are organized in such a way that they can be converted into task cards. Answers are given for the 47 problems of the entire unit. (JW)

2213 ED 116 941
Suggestions for Teaching Mathematics Using Laboratory Approaches. 6. Probability. Experimental Edition.
New York State Education Dept., Albany. Bureau of Elementary Curriculum Development.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C. Div. of Compensatory Education.
Pub Date—75
Note—30p.; For related documents, see ED 113 190-193
Pub Type— Guides - General (050)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Elementary Education, *Elementary School Mathematics, *Experiential Learning, Guides, Instruction, *Laboratory Procedures, Mathematics Instruction, Mathematics Materials, *Probability, *Teaching Guides
Identifiers—Elementary Secondary Education Act Title I

This guide is the sixth in a series of publications to assist teachers in using a laboratory approach to mathematics. Twenty activities on probability and statistics for the elementary grades are described in terms of purpose, materials needed, and procedures to be used. Objectives of these activities include basic probability concepts; gathering, tabulating, and interpreting data; making predictions; pattern discovery; formulating hypotheses; and fractions, ratios and basic statistical procedures. The publication includes diagrams, charts, illustrations, and suggested questions to assist the teacher in operating an informal laboratory. (JBW)

2214 ED 090 011
Thompson, Russ Fuller, Albert
Basic Math I, Package 01-12, Averages, Medians, Squares, and Square Roots.
Arnold Public Schools, Nebr.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—72
Note—15p.; For related documents, see SE 017 553 through 562 and SE 017 565 through 575
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Grade 9, Individualized Instruction, *Instructional Materials, Number Concepts, Objectives, *Secondary School Mathematics, *Teaching Guides, *Tests
Identifiers—Elementary Secondary Education Act Title III, *General Mathematics

This teacher guide is part of the materials prepared for an individualized program for ninth-grade algebra and basic mathematics students. Materials written for the program are to be used with audiovisual lessons recorded on tape cassettes. For an evaluation of the program, see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are included for each topic covered. Topics include averages, medians, squares, and square roots. This work was prepared under an ESEA Title III contract. (JP)

2215 ED 084 165
Allen, William B.
Practical Statistics, Mathematics: 5212.19
Dade County Public Schools, Miami, Fla.
Pub Date—72
Note—31p.; An Authorized Course of Instruction for the Quinmester Program
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Behavioral Objectives, *Curriculum, Graphs, Instruction, Mathematics Education, *Objectives, *Secondary School Mathematics, *Statistics, *Teaching Guides, Tests
Identifiers—*Quinmester Program

This guidebook on minimum course content for a study of statistical measures is designed to develop students' appreciation of the role of statistics in everday living. The primary emphasis is on activities centered on the collection and organization of data from daily happenings. Overall course goals are specified, a course outline and suggested teaching strategies are provided, performance objectives are listed and text references and a sample posttest are included. (JP)

2216 ED 079 131
Edwards, Raymond J.
Probability, Mathematics (Experimental): 5293.-38.
Dade County Public Schools, Miami, Fla.
Pub Date—71
Note—24p.; An Authorized Course of Instruction for the Quinmester Program
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Behavioral Objectives, Curriculum, Game Theory, Instruction, Mathematics Education, *Objectives, *Probability, *Secondary School Mathematics, *Teaching Guides, Tests
Identifiers—*Quinmester Program

This guidebook on minimum content for a study of probability and its applications was designed for the student who has mastered second-year algebra. Covered in this booklet are sample spaces; tree diagrams, permutations, combinations, probability concepts and applications; and game theory. The course goals and performance objectives are specified, and a course outline along with suggested sources and strategies are provided. Sample pretest and posttests and an annotated list of 14 references are included. (DT)

2217 ED 033 846
Davis, R.
[Probability, Cambridge Conference on School Mathematics Feasibility Study No. 7.]
Cambridge Conference on School Mathematics, Newton, Mass.
Pub Date—[69]
Note—61p.
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Elementary School Mathematics, *Instruction, *Instructional Materials, *Mathematics, *Probability
Identifiers—Cambridge Conference on School Mathematics MA

These materials were written with the aim of reflecting the thinking of the Cambridge Conference on School Mathematics (CCSM) regarding the goals and objectives for school mathematics. They represent a practical response to a proposal by CCSM that some elements of probability be introduced in the elementary grades. These materials provide children with a variety of activities involving probability and statistics in a laboratory setting. Opportunities are provided for children to gain experiences in various types of situations - performing experiments, recording data, graphing experimental data, determining mathematical models for chance events, and computing. The experiences described in this report are intended to give students the opportunity to become familiar, by direct experiment, with important probability concepts before they are to be studied at a more sophisticated level. [Not available in hardcopy due to marginal legibility of original document.] (RP)

2218 ED 033 026

McLane, Lyn

Probability Lessons at Hancock School, Lexington; Cambridge Conference on School Mathematics Feasibility Study No. 41.

Cambridge Conference on School Mathematics, Newton, Mass.

Pub Date—[69]

Note—74p.

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Arithmetic, *Elementary School Mathematics, Grade 4, Grade 5, Grade 6, *Instruction, Instructional Materials, *Probability, Resource Materials

Identifiers—Cambridge Conference on School Mathematics MA, Massachusetts

These materials were written with the aim of reflecting the thinking of Cambridge Conference on School Mathematics (CCSM) regarding the goals and objectives for school mathematics. Presented are plans for teaching 23 probability lessons in the elementary grades at Hancock School, Lexington, Massachusetts. The discovery approach was utilized by the teacher to involve students in the classroom discussions. Tossing a coin, rolling a die, tossing a thumbtack, and graphing are mediums used in the classroom by students before responding to questions presented by the teacher. The lesson plan for each day is listed. Transcripts of teacher and student statements are included for several lessons. [Not available in hard copy due to marginal legibility of original document]. (RP)

2219 ED 033 022

Goodman, A. F. Blischke, W. R.

Probability and Statistics: A Prelude.

McDonnell Douglas Astronautics Co., Huntington Beach, Calif. Western Div.

Pub Date—May 68

Note—39p.

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Inservice Teacher Education, *Instructional Materials, *Probability, *Secondary School Mathematics, *Statistics, Teacher Education

Probability and statistics have become indispensable to scientific, technical, and management progress. They serve as essential dialects of mathematics, the classical language of science, and as instruments necessary for intelligent generation and analysis of information. A prelude to probability and statistics is presented by examination of the important concepts that form their foundation. The brief written discussion of these concepts in outline form is augmented by examples and a bibliography. The outline forms the basis for both a series of lectures to eleventh grade students in a Mathematics Summer Honors Program, and a series of lectures to secondary mathematics teachers in a workshop on probability and statistics. (RP)

PROBLEM SOLVING

2300 ED 178 354

Schaaf, Oscar F.

Introduction to the LCMP Mathematics Problem-Solving Programs.

Lane County Education Service District, Eygene, Oreg.

Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.

Pub Date—79

Note—20p.

Pub Type— Reports - Descriptive (141)

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—*Elementary School Mathematics, Elementary Secondary Education, *Experimental Programs, Inservice Education, *Mathematics Curriculum, *Mathematics Instruction, *Problem Solving, Secondary School Mathematics, Teaching Guides

Identifiers—Oregon

Presented is a discussion on problem solving in general and a description of a specific program, the Lane County Mathematics Project, to teach problem solving. Topics considered include: (1) Why teach problem solving; (2) Can problem solving be taught; (3) What are problem-solving skills; (4) What are some examples of problem-solving strategies; (5) How will these problem-solving materials fit into the regular mathematics program; (6) What in-service education is planned for teachers who use the packets; and (7) How will the programs be evaluated? A content outline for a fourth-grade packet is also presented. (MK)

2301 ED 171 528

Problem Solving. Revised Edition.

New York State Education Dept., Albany. Bureau of General Education Curriculum Development.; State Univ. of New York, Albany.

Pub Date—Dec 78

Note—36p.

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Elementary Education, *Elementary School Mathematics, *Instruction, *Instructional Materials, *Learning Activities, *Problem Solving, *Teaching Methods

This pamphlet is designed to give help in developing problem solving by examples of techniques at grade levels one through six. A number of illustrations are presented of problems that are typical of the types appropriate at each grade level. For each problem, a suggestion of a solution appears with alternative methods suggested in several cases. Emphasis is given to the use of number sentences. Eight steps in problem solving are outlined for the initial development of problem-solving ability. (MP)

2302 ED 171 527

Sullivan, John And Others

Creative Problem Solving.

New York State Education Dept., Albany. Bureau of General Education Curriculum Development.; State Univ. of New York, Albany.

Pub Date—[78]

Note—49p.; Contains occasional light type

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—*Creative Thinking, Elementary Secondary Education, Inservice Teacher Education, *Instructional Materials, *Mathematics Education, *Pattern Recognition, Problem Sets, *Problem Solving, *Teaching Methods

Identifiers—*New York

An overview of a variety of interesting teaching techniques is given to assist school personnel in strengthening their overall mathematics programs in the first eight grades. The problem-solving approaches recommended are so designed that they should be useful in every subject. The materials could also be used as a basis for teacher in-service training. Topics covered include an enlarged view of problem solving, how to create problems, organizing facts to perceive patterns, and problem sets related to a variety of topics. (MP)

2303 ED 168 848

Mathematical Problem Solving Project - Using Tables.

Indiana Univ., Bloomington. Mathematics Education Development Center.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—May 77

Grant—NSF-PES-74-15045

Note—163p.; For related documents, see SE 026 911-934

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC07 Plus Postage.

Descriptors—Elementary Education, *Elementary School Mathematics, *Instruction, *Mathematics Education, *Problem Sets, *Problem Solving, *Teaching Methods

Identifiers—*Mathematical Problem Solving Project

This problem deck contains over 150 problems related to the module "Using Tables to Solve Problems." The problems are presented at five levels of difficulty and contain four basic types of two-dimensional tables: (1) constant sum; (2) constant differences; (3) constant quotient or ratio; and (4) constant product. (MP)

2304 ED 168 847

Mathematical Problem Solving Project - Using Tables to Solve Problems.

Indiana Univ., Bloomington. Mathematics Education Development Center.; University of Northern Iowa, Cedar Falls.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—76

Grant—NSF-PES-74-15045

Note—96p.; For related documents, see SE 026 911-934; Contains colored pages which may not reproduce well

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC04 Plus Postage.

Descriptors—*Curriculum Guides, Elementary Education, *Elementary School Mathematics, *Instruction, *Learning Activities, *Mathematics Education, Problem Sets, *Problem Solving, Teaching Methods

Identifiers—*Mathematical Problem Solving Project

This teaching guide presents six lessons on using tables to solve problems. For each lesson, the guide gives the purpose, the rationales, materials, and detailed teaching procedures. The six lessons involve making a table, completing a table, using tables to solve problems (lessons 3 and 4), reading tables, and solving problems. Each lesson opens with a cartoon drawing that places the student in a school environment. This is followed by three or four problem situations and a page extending the experiences within the lesson. Optional activities are suggested. (MP)

2305 ED 168 845

Mathematical Problem Solving Project - Using Guesses.

Indiana Univ., Bloomington. Mathematics Education Development Center.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—May 77

Grant—NSF-PES-74-15045

Note—131p.; For related documents, see SE 026 911-934

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC06 Plus Postage.

Descriptors—*Computation, Diagrams, Elementary Education, *Elementary School Mathematics, *Mathematics Education, Measurement, *Problem Sets, *Problem Solving

Identifiers—*Estimation (Mathematics), *Mathematical Problem Solving Project

This problem deck is designed for use after having covered the material in an accompanying skills booklet. It provides for further use of the skills with problems involving four skills at five levels of difficulty. The four skills involve using guesses as a strategy in solving computation problems, two-step problems, situations that require diagrams, and measurement problems using estimation. Over 125 problems are presented. (MP)

2306 ED 168 844

Mathematical Problem Solving Project - Using Guesses to Solve Problems.

Indiana Univ., Bloomington. Mathematics Education Development Center.; University of Northern Iowa, Cedar Falls.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—76

Grant—NSF-PES-74-15045

Note—67p.; For related documents, see SE 026 911-934; Colored pages may not reproduce well

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—*Curriculum Guides, Elementary Education, *Elementary School Mathematics, *Instructional Materials, *Mathematics Education, *Problem Sets, *Problem Solving

Identifiers—*Mathematical Problem Solving Project

This teacher's guide contains instructions for the use of a booklet designed to teach problem solving through guessing. For each lesson the purpose, an overview, and detailed teaching procedures are presented. The five lessons are: (1) using guesses and computation to solve problems; (2) using guesses to solve two-step problems; (3) using guesses and diagrams to solve problems; (4) using estimation to solve measurement problems; and (5) using guesses to solve problems. (MP)

2307 ED 168 842

Mathematical Problem Solving Project - Using Lists.

Indiana Univ., Bloomington. Mathematics Education Development Center.

Spons Agency—National Science Foundation, Washington, D.C

Pub Date—May 77

Grant—NSF-PES-74-15045

Note—62p.; For related documents, see SE 026 911-934

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—Elementary Education, *Elementary School Mathematics, *Instructional Materials, *Intermediate Grades, *Mathematics Education, *Problem Sets, *Problem Solving

Identifiers—*Mathematical Problem Solving Project

A set of 58 problems that may be solved by using lists is presented. This set is part of the Mathematical Problem Solving Project. The problems are coded for three levels of difficulty and are designed for students in the intermediate grades. Answers are provided. (MP)

2308 ED 168 841

Mathematical Problem Solving Project - Organizing Lists.

Indiana Univ., Bloomington. Mathematics Education Development Center.; Oakland County Schools, Pontiac, Mich.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—77

Grant—NSF-PES-74-15045

Note—90p.; For related documents, see SE 026 911-934; Colored pages may not reproduce well

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC04 Plus Postage.

Descriptors—*Curriculum Guides, Elementary Education, *Elementary School Mathematics, *Instructional Materials, *Mathematics Education, Problem Sets, *Problem Solving, Transparencies, *Worksheets

Identifiers—*Mathematical Problem Solving Project

This teacher's guide contains instructional material for use in a module designed to help students learn to use a list as one way to organize information. Detailed teaching procedures are given for each of eight lessons as well as objectives, student pages and transparencies. An answer key is provided. The lessons address the following goals: (1) reading and organizing lists; (2) making headings and entries for lists; (3) solving problems where the list is the solution and problems where the solution is contained in the list; (4) performing calculations on list entries to solve; (5) solving problems when the list suggests relationships that help solution; and (6) solving problems using three diagrams. (MP)

2309 ED 168 837

Mathematical Problem Solving Project Technical Report II: Instructional Materials. Part D: Learning to Solve Problems by Solving Problems, Appendices A and B.

Indiana Univ., Bloomington. Mathematics Education Development Center.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—May 77

Grant—NSF-PES-74-15045

Note—45p.; For related documents, see SE 026 911-934; Contains light and broken type

Pub Type— Reports - Research (143)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Concept Formation, *Educational Research, Elementary Education, *Elementary School Mathematics, Evaluation Methods, *Instructional Materials, *Mathematics Education, *Problem Sets, *Problem Solving

Identifiers—*Mathematical Problem Solving Project

Instructional materials used in two pilot studies are presented. Appendix A contains components of the problem-solving bulletin board. Eighteen problems are stated along with suggestions for solving each problem. Problems 1-10 contain questions extending the original problem. Teacher answer sheets are given for problems 4-18. Appendix B contains observation sheets and interview forms used by the researchers. (MP)

2310 ED 168 835

LeBlanc, John F.

Mathematical Problem Solving Project Technical Report I: Documents Related to a Problem-Solving Model. Part C: You Can Teach Problem Solving. Final Report.

Indiana Univ., Bloomington. Mathematics Education Development Center.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—May 77

Grant—NSF-PES-74-15045

Note—16p.; For related documents, see SE 026 911-934

Pub Type— Reports - Research (143)

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—Elementary Education, *Elementary School Mathematics, *Instruction, *Learning Activities, *Mathematics Education, *Problem Solving, *Teaching Methods

Identifiers—*Mathematical Problem Solving Project

Four procedures are stated which are inherent in problem solving: (1) understanding the problem; (2) planning to solve the problem; (3) solving the problem; and (4) reviewing the problem and the solution. Each of the four procedures is illustrated using problems appropriate for elementary school children. These illustrations are accompanied by some guidelines and instructional moves which can be used to help children in their problem solving. Two different problems are used: (1) a typical textbook problem; and (2) a process problem. (MP)

2311 ED 162 875

Dilworth, R. P. And Others

Studies in Mathematics, Volume XVIII: Puzzle Problems and Games Project. Final Report.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—68

Note—218p.; For related documents, see SE 025 371-374 and ED 143 544-557; Not available in hard copy due to marginal legibility of original document

Pub Type— Guides - General (050)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Curriculum, *Discovery Learning, *Elementary School Mathematics, Elementary Secondary Education, *Games, Instruction, *Instructional Materials, Mathematics Education, *Secondary School Mathematics, *Teaching Guides

Identifiers—School Mathematics Study Group

This is a self-contained manual for use by teachers in preparation for classroom presentations. One of the goals of the report is to show how games and puzzles can provide effective means for developing mathematical understanding and skills. The authors indicate that this type of activity is well adapted for discovery teaching techniques. The report is organized into two main parts. The first part contains experimental units that were tested in the classroom. The topics in this part include: (1) nim-type games; (2) polyominoes; (3) symmetry; (4) a countinq machine; (5) findinq the qreatest common divisor; (6) linear function games; and (7) games with addition tables. The second part consists of the report of a project to compile a list of games and puzzles appropriate for use in the mathematics classroom. Twenty-seven papers contain (in addition to the above list) activities such as: (1) magic squares; (2) Fibonacci problems; (3) geometric puzzles; (4) numerical oddities; and (5) powers and primes. (MP)

2312 ED 162 872

Polya, George

Studies in Mathematics, Volume XI: Mathematical Methods in Science.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—63

Note—249p.; For related documents, see SE 025 371-375 and ED 143 544-557; Contains occasional light type

Pub Type— Guides - General (050)

EDRS Price - MF01/PC10 Plus Postage.

Descriptors—*Course Descriptions, Curriculum, *Higher Education, *Instruction, *Mathematical Applications, Mathematics, Mathematics Education, *Physical Sciences, Science History, Sciences, Secondary Education, *Secondary School Mathematics, Teacher Education

Identifiers—School Mathematics Study Group

This is a course of lectures given by George Polya at Stanford University to teachers, or prospective teachers, of mathematics and science. One of the essential tendencies of the course is to point to the history of certain elementary parts of science as a source of efficient teaching in the classroom. The lectures include: (1) very simple physical or prephysical problems that could be discussed at the high school level; (2) the relation of mathematics to science and of science to mathematics; and (3) elementary calculus. Chapter topics include: (1) history of astronomy-measurement and successive approximation; (2) history of mechanics; (3) history of dynamics; (4) physical reasoning in mathematics; and (5) differential equations and their use in science. (MP)

TESTING

2400 ED 183 388

Selected Supplemental Mathematics Exercises. National Assessment of Educational Progress.

Education Commission of the States, Denver, Colo. National Assessment of Educational Progress.
Pub Date—Oct 77
Note—199p.
Pub Type— Tests/Questionnaires (160) — Numerical/Quantitative Data (110)
EDRS Price - MF01/PC08 Plus Postage.
Descriptors—Computation, Definitions, *Educational Assessment, Elementary Secondary Education, Geometry, Graphs, Mathematical Concepts, *Mathematics Education, Measurement, Number Concepts, *Problem Sets, Problem Solving, Statistics, Tables (Data), Test Construction, *Test Items
Identifiers—*National Assessment of Educational Progress

The National Assessment of Educational Progress (NAEP) administered the selected supplemental mathematics exercises to 13-year-old students during October and November 1975 and to 17-year-old students during March and April 1976. This assessment represents a specially modified supplement to 1972-73 full-scale mathematics assessment and was designed to determine whether 13- and 17-year-old students can successfully cope with basic computations, operations, simple graphs and charts, symbols, situation (word) problems, etc. Of the 88 exercise parts administered to 13-year-olds, 61 have been released; and of the 83 exercise parts administered to 17-year-old students, 65 have been released. Only the released exercises are presented in this volume. Each released exercise or exercise part is accompanied by a documentation page that identifies the exercise content and objective and its National Assessment identification number. The documentation page also gives the exercise release number and various administrative information. The data table at the bottom of each documentation page or on the following page presents the 1975-76 results for the correct answer to the exercise part shown in this volume. (Author/MK)

2401 ED 182 174

Kahl, Stuart

Mathematical Understanding: Selected Results from the Second Assessment of Mathematics.

Education Commission of the States, Denver, Colo. National Assessment of Educational Progress.
Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Report No.—NAEP-09-MA-04
Pub Date—Dec 79
Contract—OEC-0-74-0506
Note—53p.; For related documents, see ED 176 964-965
Available from—Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402 (no price quoted); NAEP, 1860 Lincoln Street, Denver, CO 80295 ($3.85)
Pub Type— Reports - Research (143)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—*Academic Ability, *Achievement, *Educational Assessment, *Educational Research, Elementary Secondary Education, Evaluation, Geometry, Mathematical Concepts, *Mathematics Education, Measurement, *National Surveys, Number Concepts, *Student Characteristics
Identifiers—*National Assessment of Educational Progress

This is one of a series of reports summarizing the results of the second mathematics assessment conducted by the National Assessment of Educational Progress (NAEP). Nine, 13- and 17-year-olds were assessed during the 1977-78 school year. The assessment measured achievement in various content areas at four levels of cognitive processes: knowledge, skill, understanding, and application. This report describes performance on the understanding items. Included are results for understanding of numbers and numeration, variables and relationships, geometry, measurement, and various other topics. The report also contains group results, age-level comparisons and observations on the results. The observations, consisting of a historical perspective, implications of the results, and recommendations, were made by a panel of people active in the field of mathematics education. Among the panel's five recommendations were: (1) An expanded definition of what is "basic" in mathematics is crucial to foster students' ability to cope with different types of mathematical tasks; (2) There is a need to promote understanding of concepts and to link skill development to problem-solving activities; and (3) There is a need for more consistent and comprehensive teacher education in the mathematics area. (MK)

2402 ED 177 018

Engelhardt, Jon M. Wiebe, James H.

Measuring Diagnostic/Remedial Competence in Teaching Elementary School Mathematics.

Pub Date—[78]
Note—25p.
Pub Type— Tests/Questionnaires (160)
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—*Clinic Personnel (School), Educational Diagnosis, Elementary Education, *Elementary School Mathematics, *Elementary School Teachers, *Measurement Instruments, Remedial Instruction, Remedial Mathematics, *Special Education Teachers, Teacher Behavior, Teacher Education, *Teacher Evaluation

Presented is an instrument that can be used to determine the competence of regular classroom teachers, special-education teachers, or clinicians in the area of diagnosis and remedial instruction in elementary mathematics. The instrument itself, an answer form, background and theoretical development of the instrument, reliability and validity data, scoring details, and a sample demonstrating the techniques for scoring are included. (Author/MK)

2403 ED 177 011

Ward, Barbara

Changes in Mathematical Achievement, 1973-78: Results from the Second Assessment of Mathematics.

Education Commission of the States, Denver, Colo. National Assessment of Educational Progress.
Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Report No.—NAEP-09-MA-01
Pub Date—Aug 79
Contract—OEC-0-74-0506
Note—43p.
Available from—National Assessment of Educational Progress, 1860 Lincoln St., Suite 700, Denver, Colorado 80295 ($1.75)
Pub Type— Reports - Evaluative (142) — Reports - Research (143)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Academic Achievement, *Educational Assessment, *Educational Change, *Educational Research, Elementary School Mathematics, Elementary Secondary Education, Evaluation, *Mathematics Education, *National Competency Tests, National Surveys, Secondary School Mathematics, Testing
Identifiers—Mathematical Assessment

The National Assessment of Educational Progress (NAEP) has completed two surveys of mathematics achievement of 9-, 13-, and 17-year-old students. The first was conducted during the 1972-73 school year and the second five years later, during 1977-78. This report describes changes in students' performance between the assessments. The overall results indicate some decline in mathematics achievement. Changes in performance differed by type of item and by age group. Declines became more apparent for older students. The results for whole number computation were generally satisfactory; however, results for problem solving were generally low and had declined. The assessment indicated a significant decline on mathematics understanding items only for 17-year-olds, while all three age groups declined on mathematics applications items. A panel chosen to intepret the results warned against placing too much emphasis on overall results and stated that changes for population groups or specific item types provide more meaningful information. The panel made seven recommendations for school mathematics. (MK)

2404 ED 176 965

Ward, Barbara

Mathematical Applications: Selected Results from the Second Assessment of Mathematics.

Education Commission of the States, Denver, Colo. National Assessment of Educational Progress.
Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Report No.—NAEP-09-MA-03
Pub Date—Aug 79
Contract—OEC-0-74-0506
Note—66p.; For related document, see SE 028 819
Available from—Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (no price quoted); and NAEP, 1860 Lincoln St., Denver, CO 80295 ($4.50)
Pub Type— Reports - Research (143)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—*Academic Ability, *Achievement, *Educational Assessment, Educational Research, Elementary Education, Evaluation, Mathematical Applications, Mathematical Concepts, *Mathematics Education, *National Surveys, *Problem Solving, Secondary Education, *Student Characteristics
Identifiers—*National Assessment of Educational Progress

This is one of a series of reports summarizing the results of the second mathematics assessment conducted by the National Assessment of Educational Progress (NAEP). Nine, 13- and 17-year-olds were assessed during the 1977-78 school year. The assessment measured achievement in various content areas at four levels of cognitive processes (knowledge, skill, understanding and application). This report describes performance on application items. The report includes results for one-step word problems, problems about consumer situations, multi-step word problems, non-routine problems, and problems involving geometry, measurement, probability and statistics, graphs and tables, or reasoning making judgments. The report also includes group results, age level comparisons and observations on the results. The observations, consisting of interpretation, consideration of implications and recommendations, were made by a panel of persons active in the field. The panel felt that the results implied that problem solving is a major area of concern in mathematics education. Among the panel's seven recommendations were an expanded definition of what is "basic" modification of textbooks to include a greater variety of problem-solving tasks and more emphasis on the teaching of problem solving. (PK)

2405 ED 176 964

Kahl, Stuart

Mathematical Knowledge and Skills: Selected Results from the Second Assessment of Mathematics.

Education Commission of the States, Denver, Colo. National Assessment of Educational Progress.
Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Report No.—NAEP-09-MA-02
Pub Date—Aug 79
Contract—OEC-0-74-0506
Note—83p.; For related document, see SE 028 820
Available from—Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (no price quoted); and NAEP, 1860 Lincoln St., Denver, CO 80295 ($4.65)
Pub Type— Reports - Research (143)
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—*Academic Ability, *Achievement, *Basic Skills, Computation, *Educational Assessment, Educational Research, Elementary Education, Evaluation, Mathematical Concepts, *Mathematics Education, *National Surveys, Secondary Education, *Student Characteristics
Identifiers—*National Assessment of Educational Progress

This is one of a series of reports summarizing the results of the second mathematics assessment conducted by the National Assessment of Educational Progress (NAEP). Nine, 13- and 17-year-olds were assessed during the 1977-78 school year. The assessment measured achievement in various content areas at four levels of cognitive processes (knowledge, skill, understanding, and application). This report describes performance on knowledge and skill items. The report includes results for mathematical knowledge in the areas of numbers and numeration, geometry and measurement. The results for skills are divided into computational skills (computation with whole numbers, fractions, decimals, integers, percent, and conversion between fractional form) and other mathematical skills (measurement, reading graphs and tables, geometric manipulations, algebraic manipulations and estimation skills). The report also includes group results, age level comparisons and observations on the results. The observations, consisting of interpretation, consideration of implications, and recommendations, were made by a panel of persons active in the field. It was the judgment of this panel that while performance is generally satisfactory for knowledge and whole number computational skills, achievement in many other areas is below desired levels. Among the five recommendations is that the remedy for areas in which performance is not satisfactory should not be to expand rote drill and mechanistic teaching approaches but should strive to promote understanding. (PK)

2406 ED 171 586
Henderson, George L. And Others
Wisconsin Mathematics Test, Grades 7 and 8.
Wisconsin State Dept. of Public Instruction, Madison. Div. of Instructional Services.
Pub Date—[78]
Note—67p.; Contains occasional light and broken type
Pub Type— Tests/Questionnaires (160)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—*Achievement Tests, *Criterion Referenced Tests, *Diagnostic Tests, Grade 7, Grade 8, Secondary Education, *Secondary School Mathematics, *Tests
Identifiers—*Wisconsin

This mathematics achievement test for grades 7 and 8 is based on objectives identified in "Guidelines to Mathematics, 6-8." The test can be used as a criterion-referenced instrument, a diagnostic instrument, or an achievement instrument. Each test item is cross-referenced to the corresponding student behavioral objective in the above publication. This cross-referencing makes it possible to analyze strengths and weaknesses through item analysis comparison with objectives. Technical information included consists of test reliability and descriptive statistics. (MP)

2407 ED 171 045
Somwaru, Jwalla P.
Criterion-Referenced Assessment of Basic Competencies.
Pub Date—Apr 79
Note—15p.; Paper presented at the Annual International Convention, The Council for Exceptional Children (57th, Dallas, Texas, April 22-27, 1979, Session TH-97)
Pub Type— Tests/Questionnaires (160) — Speeches/Meeting Papers (150)
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—*Basic Skills, *Culture Fair Tests, *Educational Diagnosis, *Evaluation Methods, *Minority Groups, *Test Bias
Identifiers—*Assessment of Basic Competencies

The paper discusses a new battery of tests, the Assessment of Basic Competencies, designed for fair assessment of the latent abilities of minority group children. It is explained that the tests provide diagnostic assessment in several domains of competence that are considered important for school learning. The three domains, information processing, language, and mathematics, are said to be covered by 11 tests which measure specific enabling skills. weaknesses and strengths are identified, suggestions are made for educational intervention, and lists of selected instructional resources are presented with annotations. The author asserts that low test performance does not reflect bias; it reflects greater educational need in domains significant for acquiring school learning. (Author/CL)

2408 ED 109 188
Petrosko, Joseph M. Hufano, Linda
An Assessment of the Quality of High School Mathematics Tests.
Pub Date—[Apr 75]
Note—20p.; Paper presented at the Annual Meeting of the National Council on Measurement in Education (Washington, D. C., March 31-April 2, 1975)
Pub Type— Reports - Research (143)
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Algebra, Comparative Analysis, *Evaluation, *Evaluation Criteria, Geometry, High Schools, *Mathematics, *Secondary Education, *Standardized Tests, Test Construction, Test Reliability, Tests, Test Validity

An assessment was made of the psychometric and educational quality of all high school level tests of general mathematics, applied mathematics, algebra and geometry. The study was part of a large-scale project involving evaluations of all standardized secondary school tests available in the United States. Assessments revealed most tests to be low in many types of validity and reliability. Tests of general mathematics, which included arithmetic, fared the best across 39 criteria of test quality. Test developers are not meeting many basic standards of test quality in constructing mathematics tests. (Author)

2409 ED 086 517
Suydam, Marilyn N.
Evaluation in the Mathematics Classroom: From What and Why to How and Where.
ERIC Information Analysis Center for Science, Mathematics, and Environmental Education, Columbus, Ohio.
Pub Date—Jan 74
Note—70p.; Mathematics Education Reports
Available from—Ohio State University, Center for Science and Mathematics Education, 244 Arps Hall, Columbus, Ohio 43210
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Annotated Bibliographies, Attitudes, Cognitive Development, Elementary School Mathematics, *Evaluation, *Evaluation Methods, *Instruction, *Mathematics Education, Secondary School Mathematics, *Test Construction, Testing

This document discusses the role and the scope of evaluation in the mathematics classroom. The scope of mathematics objectives to be evaluated, the scope of evaluation purposes in the mathematics classroom, and the scope of evaluation procedures are noted. Specific comments are made on various procedures: observations, interviews, inventories and checklists, attitude scales, and various types of paper-and-pencil tests. Both general and specific suggestions for planning tests and for writing various types of test items are included. An annotated list of selected references is included to direct attention to documents which will provide additional help. (JP)

2410 ED 081 846
Scott, Norval C., Jr.
Zip Test.
Butte County Superintendent of Schools, Oroville, Calif.; California State Dept. of Education, Sacramento. Bureau of Community Services and Migrant Education.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Note—24p.
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Achievement Tests, *Diagnostic Tests, Elementary Education, *Elementary School Mathematics, *Grouping (Instructional Purposes), *Language Fluency, Language Skills, Language Tests, Migrant Children, *Migrant Education, Reading Diagnosis, Reading Level

A copy of the Zip Test, designed to determine quickly the grade placement of a migrant child in reading and math and to assess his English language facility, is presented. The purpose of the test is to locate the instructional level at which the child can effectively use mathematics and reading books and to indicate his ability to conceptualize verbally in English. The test is not intended for use in chronological grade placement. The test consists of a group of pictures of objects and activities, a series of simple words, six brief stories (each consisting of only a few sentences), a series of multiple-choice word opposites, a group of shapes and numbers, and a series of arithmetic problems. Two forms for use in recording the child's performance on the test and placement level are also presented. (KM)

2411 ED 033 048
Skill-Level Grouping in Modern Mathematics K-6; Attachment I.
Clark County School District, Las Vegas, Nev.
Spons Agency—Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No.—BR-8-1-065
Pub Date—Jun 69
Grant—OEG-9-8-081065-0159-010
Note—219p.
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Arithmetic, *Elementary School Mathematics, *Evaluation, *Tests
Identifiers—Nevada

Included in this document are tests used to assess achievement in mathematics (K-6) in an experimental study conducted in the Clark County School District in Nevada. Each test is designed to assess learning at a definite skill level. Included are directions for administering each test, behavioral objectives assessed by each test and each test item, and desired answers for each test item. This document is the best copy available of the report. [Not available in hard copy due to marginal legibility of original document]. (RP)

VARIED TOPICS: K-3

2500 ED 175 652
CSMP Mathematics for the Upper Primary Grades Part II, Teacher's Guide. The Languages of Strings and Arrows. Geometry and Measurement. Workbooks. Final Experimental Version.
Central Midwestern Regional Educational Lab., St. Ann, Mo.
Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Pub Date—79
Note—346p.; For related documents, see SE 027 875-892; Contains colored charts and activities which may not reproduce well; Not available in hard copy due to copyright restrictions
Pub Type— Guides - Classroom - Teacher (052)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Curriculum Development, *Curriculum Guides, Early Childhood Education, *Elementary School Mathematics, Geometry, *Instructional Materials, Mathematical Logic, *Mathematics Curriculum, *Mathematics Instruction, Measurement, *Number Concepts, Primary Education, Set Theory, Teaching Guides, Textbooks, Workbooks
Identifiers—*Comprehensive School Mathematics Program

This guide represents the final experimental version of an extended pilot project which was conducted in the United States between 1973 and 1976. The manner of presentation and the pedagogical ideas and tools are based on the works of Georges and Frederique Papy. They are recognized as having introduced colored arrow drawings ('papygrams") and models of our numeration system (the Papy "minicomputer") into the teaching of mathematics at the elementary and secondary level in Belgium. The CSMP curriculum follows the "spiral approach." The text begins with exercises in the Language of Strings and Arrows. These are intended to teach the skills of classification and provide a language for studying and talking about relationships. The section entitled Geometry and Measurement emphasizes "experience" rather than "mastery." Activities deal with distance and measurement in an unsophisticated sense. Five workbooks are included with problems of varying levels of difficulty all in one booklet. The first ten problems of each booklet are easy problems, the next ten to twelve pages are average level difficulty, and the last ten pages are more challenging problems. The students have the opportunity to work individually with the workbook sections. (Author/SA)

2501 ED 175 651
Heidema, Clare Schweitzer, Janis
CSMP Mathematics for the Upper Primary Grades Part II, Teacher's Guide [and] Worksheets. General Introduction. The World of Numbers. Final Experimental Version.
Central Midwestern Regional Educational Lab., St. Ann, Mo.
Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Pub Date—79
Note—463p.; For related documents, see SE 027 875-893; Contains colored charts and activities which may not reproduce well; Not available in hard copy due to copyright restrictions
Pub Type— Guides - Classroom - Teacher (052)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Curriculum Development, Curriculum Guides, Elementary Education, *Elementary School Mathematics, *Instructional Materials, Integers, *Mathematical Logic, *Mathematics Curriculum, Mathematics Instruction, Multiplication, *Number Concepts, Primary Education, Rational Numbers, Set Theory, Teaching Guides, Textbooks, Workbooks
Identifiers—*Comprehensive School Mathematics Program

This guide represents the final experimental version of a pilot project conducted in the United States between 1973 and 1976. The ideas and manner of presentation are based on the works of Georges and Frederique Papy. They are recognized as having introduced colored arrow drawings ('papygrams") and models of our numeration system (the Papy "minicomputer") into the teaching of mathematics at the elementary and secondary level in Belgium. This program follows the "spiral approach." Suggestions are given for acquiring materials for lessons. This guide is divided into four sections which include: Notes to the Teacher, Suggested Schedule of Lessons, Questions and Answers About the Comprehensive School Mathematics Program, and The World of Numbers. Worksheets for the students accompany the guide. (Author/SA)

2502 ED 175 650
Heidema, Clare Schweitzer, Janis
CSMP Mathematics for the Upper Primary Grades Part I, Teacher's Guide [and] Worksheets. General Introduction. The World of Numbers. Final Experimental Version.
Central Midwestern Regional Educational Lab., St. Ann, Mo.
Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Pub Date—78
Note—442p.; For related documents, see SE 027 875-893; Contains colored charts and activities which may not reproduce well; Not available in hard copy due to copyright restrictions
Pub Type— Guides - Classroom - Teacher (052)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Addition, Curriculum Development, Curriculum Guides, Elementary Education, *Elementary School Mathematics, *Instructional Materials, Integers, *Mathematical Logic, *Mathematics Curriculum, Mathematics Instruction, Multiplication, *Number Concepts, Primary Education, Set Theory, Subtraction, Teaching Guides, Textbooks, Workbooks
Identifiers—*Comprehensive School Mathematics Program

This guide represents the final experimental version of a pilot project conducted in the United States between 1973 and 1976. The ideas and manner of presentation are based on the works of Georges and Frederique Papy. They are recognized as having introduced colored arrow drawings ('papygrams") and models of our numeration system (the Papy "minicomputer") into the teaching of mathematics at the elementary and secondary level in Belgium. This program follows the "spiral approach." This guide includes the General Introduction and "The World of Numbers." The program description includes suggestions for teaching the materials and using the work pages. Suggestions for organizing the program are also given. Worksheets for the students accompany the guide. (Author/SA)

2503 ED 175 649
CSMP Mathematics for the Upper Primary Grades Part I, Teacher's Guide. The Languages of Strings and Arrows. Geometry and Measurement. Workbooks. Final Experimental Version.
Central Midwestern Regional Educational Lab., St. Ann, Mo.
Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Pub Date—78
Note—371p.; For related documents, see SE 027 875-893; Contains colored charts and activities which may not reproduce well; Not available in hard copy due to copyright restrictions
Pub Type— Guides - Classroom - Teacher (052)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Addition, Curriculum Development, Curriculum Guides, Elementary Education, *Elementary School Mathematics, Geometry, *Instructional Materials, Integers, *Mathematical Logic, Mathematics Instruction, Measurement, Multiplication, *Number Concepts, *Primary Education, Rational Numbers, Set Theory, Subtraction, Teaching Guides, Textbooks, Workbooks
Identifiers—*Comprehensive School Mathematics Program

This guide represents the final experimental version of a pilot project conducted in the Unites States between 1973 and 1976. The ideas and manner of presentation are based on the works of Georges and Frederique Papy. They are recognized as having introduced colored arrow drawings ('papygrams") and models of our numeration system (the Papy "minicomputer") into the teaching of mathematics at the elementary and secondary level in Belgium. This program follows the "spiral approach." Suggestions are given for acquiring materials for lessons. This guide is divided into the Language of Strings and Arrows, Geometry and Measurement, and the Appendix, which contains the String Game. The five workbooks in this volume are intended for individual work. The answer key for the workbooks is included with the guide. A chart is given for the teacher to keep track of each student's progress. (Author/SA)

2504 ED 175 636
Saunders, Kevin Schweitzer, Janis
CSMP Mathematics for the First Grade Part II, Teacher's Guide [and] Worksheets. Final Experimental Version.
Central Midwestern Regional Educational Lab., St. Ann, Mo.
Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Pub Date—79
Note—592p.; For related documents, see SE 027 875-893; Not available in hard copy due to copyright restrictions; Contains colored charts and activities which may not reproduce well
Pub Type— Guides - Classroom - Teacher (052)
EDRS Price - MF03 Plus Postage. PC Not Available from EDRS.
Descriptors—Curriculum Development, *Curriculum Guides, Early Childhood Education, *Elementary School Mathematics, Grade 1, *Instructional Materials, Mathematical Logic, *Mathematics Curriculum, Mathematics Education, *Mathematics Instruction, *Number Concepts, Primary Education, Set Theory, Teaching Guides, Textbooks, Workbooks
Identifiers—*Comprehensive School Mathematics Program

This Teacher's Guide for first-grade mathematics is an outgrowth of an extended pilot project conducted nationwide between 1973 and 1976. The manner of presentation and the pedagogical ideas and tools are based on the works of Georges and Frederique Papy. They are recognized as having introduced colored arrow drawings ('papygrams") and models of our numeration system (the Papy "minicomputer") into the teaching of mathematics at the elementary and secondary level in Belgium. The CSMP curriculum follows the "spiral approach." The guide emphasizes that a topic may provide children with intuitive leaps which might help them acquire successive pieces of information. The Teacher's Guides for first grade are bound in two volumes. This part is the second volume and includes eighty lessons for the second semester. Each lesson is summarized, described, and illustrated. Materials for the student and the teacher are given. Suggestions for organizing the lessons on a month-to-month basis reflect the experiences of the CSMP staff in developing the curriculum. In the appendix, the teacher is provided with information to enable him/her to teach the String Game, a game which is developed and reinforced throughout the CSMP curriculum. Worksheets for the students accompany the guide. (Author/SA)

2505 ED 175 635
Saunders, Kevin And Others
CSMP Mathematics for the First Grade Part I, Teacher's Guide [and] Worksheets. Final Experimental Version.
Central Midwestern Regional Educational Lab., St. Ann, Mo.
Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Pub Date—78
Note—642p.; For related documents, see SE 027 875-893; Not available in hard copy due to copyright restrictions; Contains colored charts and activities which may not reproduce well
Pub Type— Guides - Classroom - Teacher (052)
EDRS Price - MF03 Plus Postage. PC Not Available from EDRS.
Descriptors—Curriculum Development, *Curriculum Guides, Early Childhood Education, *Elementary School Mathematics, Grade 1, *Instructional Materials, Mathematical Logic, *Mathematics Curriculum, Mathematics Education, *Mathematics Instruction, *Number Concepts, Primary Education, Set Theory, Teaching Guides, Textbooks, Worksheets
Identifiers—*Comprehensive School Mathematics Program

This Teacher's Guide for first-grade mathematics is an outgrowth of an extended pilot project conducted nationwide between 1973 and 1976. The manner of presentation and the pedagogical ideas and tools are based on the works of Georges and Frederique Papy. They are recognized as having introduced colored arrow drawings ('papygrams") and models of our numeration system (the Papy "minicomputer") into the teaching of mathematics at the elementary and secondary level in Belgium. The CSMP curriculum follows the "spiral approach." The guide emphasizes that a topic may provide children with intuitive leaps which might help them acquire successive pieces of information. A list of demonstration manipulative materials available from CSMP is presented as well as individual materials for each student. Other materials not available from CSMP are announced in the text in advance of the lessons for which they are needed. This is part 1 of a two-part Teacher's Guide. Eighty lessons are included and each is titled, described, and summarized with a list of materials presented. Suggestions for organizing the program on a month-to-month basis for one semester reflects the experiences of the CSMP staff in developing the curriculum. Questions which are frequently asked about CSMP are answered in section two of the text. Worksheets for the students are included. (Author/SA)

2506 ED 175 634
Vandeputte, Christiane
CSMP Mathematics for Kindergarten, Teacher's Guide [and] Worksheets. Final Experimental Version.
Central Midwestern Regional Educational Lab., St. Ann, Mo.
Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Pub Date—76
Note—596p.; For related documents, see SE 027 876-893; Not available in hard copy due to copyright restrictions; Contains colored charts and activities which may not reproduce well
Pub Type— Guides - Classroom - Teacher (052)
EDRS Price - MF03 Plus Postage. PC Not Available from EDRS.
Descriptors—Curriculum Development, *Curriculum Guides, Early Childhood Education, *Elementary School Mathematics, *Instructional Materials, Kindergarten Children, Mathematical Logic, *Mathematics Curriculum, Mathematics Instruction, *Number Concepts, Primary Education, Set Theory, Teaching Guides, Textbooks, Workbooks
Identifiers—*Comprehensive School Mathematics Program

This guide represents the final experimental version of an extended pilot project which was conducted in the United States between 1973 and 1976. The manner of presentation and the pedagogical ideas and tools are based on the works of Georges and Frederique Papy. They are recognized as having introduced colored arrow drawings ('papygrams") and models of our numeration system (the Papy "minicomputer") into the teaching of mathematics at the elementary and secondary level in Belgium. The CSMP curriculum follows the "spiral approach." The guide emphasizes that a topic may provide children with intuitive leaps which might help them acquire successive pieces of information. Suggestions are presented to the teacher for obtaining and preparing materials for lessons. The list of materials is organized into those available and those not available from CSMP. The text of the guide is divided into four sections. The first is an open letter to the teacher in which questions most frequently asked are answered. The next section is a set of ideas on how to develop a good numerical environment and a variety of quick number activities for daily use. The Day-by-Day Guide, section three, contains 108 lessons. Each is titled, described, and illustrated. Materials necessary for the teacher and students are listed. The final section presents problems for both remedial and more challenging work. The lessons and activities are intended for whole group, small group, or individualized instruction. Worksheets for the students accompany the guide. (Author/SA)

2507 ED 173 129
Beatty, Leslie And Others
Mathematics for the Elementary School, Book 1. Teachers' Commentary. Preliminary Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—63
Note—317p.; For related document, see SE 027 961, ED 143 533, ED 143 535, and ED 144 836; Contains occasional light and broken type
Pub Type— Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC13 Plus Postage.
Descriptors—*Addition, Curriculum, *Curriculum Guides, Elementary Education, *Elementary School Mathematics, *Geometry, Grade 1, *Instruction, Mathematics Education, Measurement, *Number Concepts, Subtraction
Identifiers—*School Mathematics Study Group

This is a first-grade manual for teachers using SMSG elementary school text materials. For each chapter background information is given; for each section, objectives, vocabulary, materials, suggested procedures, and further activities are listed. Chapter topics include: (1) pre-number experiences; (2) recognizing geometric shapes; (3) building number concept; (4) pre-addition and subtraction experiences; (5) numbers and the number line; (6) comparing geometric shapes; (7) addition and subtraction; (8) place value and numeration; (9) introducing linear measurement; (10) extending addition and subtraction; and (11) previews and extensions. (MP)

2508 ED 173 128
Beatty, Leslie And Others
Mathematics for the Elementary School, Book K. Teachers' Commentary. Preliminary Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—63
Note—57p.; For related document, see SE 027 962, ED 144 791, and ED 144 835; Contains occasional light and broken type
Pub Type— Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Curriculum, *Curriculum Guides, Elementary Education, *Elementary School Mathematics, *Geometry, *Instruction, Kindergarten, Mathematics Education, *Number Concepts, *Set Theory
Identifiers—*School Mathematics Study Group

This is a kindergarten manual for teachers using SMSG elementary school text materials. For each chapter, objectives, vocabulary, materials, and activities to help develop concepts are given. Chapter topics include: (1) sets; (2) recognizing geometric shapes; (3) comparison of sets; (4) subset; (5) joining and removing; (6) ordering; (7) using geometric shapes for directions and games; and (8) using numbers with sets. (MP)

2509 ED 173 091
Beatty, Leslie And Others
Mathematics for the Elementary School, Book 3, Student's Text, Part II, Unit No. 57. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—65
Note—223p.; For related documents, see SE 027 895-897
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC09 Plus Postage.
Descriptors—Curriculum, Elementary Education, *Elementary School Mathematics, *Fractions, *Geometry, *Instruction, Mathematics Education, *Number Concepts, *Textbooks
Identifiers—Area, *School Mathematics Study Group

This is part two of a two-part SMSG elementary school text for third-grade students. The development of mathematical ideas in the text is grounded in appropriate experiences with things from the physical world and the immediate environment. Chapter topics include: (1) addition and subtraction; (2) length and area; (3) multiplication; (4) quotients; (5) division; and (6) rational numbers. (MP)

2510 ED 173 090
Beatty, Leslie And Others
Mathematics for the Elementary School, Book 3, Student's Text, Part I, Unit No. 56. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—65
Note—240p.; For related documents, see SE 027 895-898
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC10 Plus Postage.
Descriptors—Curriculum, Elementary Education, *Elementary School Mathematics, *Geometry, Grade 3, Graphs, *Instruction, Mathematics Education, *Number Concepts, *Textbooks
Identifiers—*Number Operations, *School Mathematics Study Group

This is part one of a two-part SMSG elementary school text for third-grade students. The development of mathematical ideas in the text is grounded in appropriate experiences with things from the physical world and the immediate environment. Chapter topics include: (1) sets of points; (2) addition and subtraction; (3) describing points and numbers; and (4) arrays and multiplication. (MP)

2511 ED 173 089
Beatty, Leslie And Others
Mathematics for the Elementary School, Book 2, Student's Text, Unit No. 54. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—64
Note—269p.; For related documents, see SE 027 895-898
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC11 Plus Postage.
Descriptors—Curriculum, Elementary Education, *Elementary School Mathematics, *Geometry, Grade 2, *Instruction, Mathematics Education, *Measurement, *Number Concepts, Set Theory, *Textbooks
Identifiers—Number Operations, *School Mathematics Study Group

This is an SMSG elementary school text for second-grade students. The development of mathematical ideas in the text is grounded in appropriate experiences with things from the physical world and the immediate environment. Chapter topics include: (1) sets and numbers; (2) addition and subtraction; (3) sets of points; (4) linear measurement; (5) computing sums and differences; (6) congruence of angles and triangles; (7) arrays and multiplication; and (8) division and rational numbers. (MP)

2512 ED 173 088
Beatty, Leslie And Others
Mathematics for the Elementary School, Book 1, Student's Text, Unit No. 52. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—64
Note—199p.; For related documents, see SE 027 896-898 and ED 143 532
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC08 Plus Postage.
Descriptors—Curriculum, Elementary Education, *Elementary School Mathematics, *Geometry, Grade 1, *Instruction, Mathematics Education, *Number Concepts, *Set Theory, *Textbooks
Identifiers—Number Operations, *School Mathematics Study Group

This is an SMSG elementary school text for first-grade students. The development of mathematical ideas in the text is grounded in appropriate experiences with things from the physical world and the immediate environment. Chapter topics include: (1) sets and numbers; (2) numerals and the number line; (3) sets of ten; (4) introduction to addition and subtraction; (5) recognizing geometric figures; (6) place value and numeration; and (7) arrays and multiplication. (MP)

2513 ED 167 387
Berger, Jennie Lombardi, Alice D.
Mathematics, Grade 3. Curriculum Bulletin No. 9.
New York City Board of Education, Brooklyn, N.Y. Div. of Educational Planning and Support.
Pub Date—78
Note—184p.; For related document, see SE 026 765; Not available in hard copy due to copyright restrictions
Available from—Board of Education of the City of New York, Publications Sales Office, 110 Livingston St., Brooklyn, New York 11201 ($3.50; Make checks payable to Auditor, Board of Education)
Pub Type— Guides - Classroom - Teacher (052) — Collected Works - Serials (022)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Curriculum, Curriculum Guides, Elementary Education, *Elementary School Mathematics, *Grade 3, *Instruction, Learning Activities, *Spiral Curriculum, *Teaching Guides

A comprehensive mathematics program for grade 3 is presented in 66 units. These units are organized around four central themes: (1) number and numeration; (2) operations with numbers; (3) geometry and measurement; and (4) algebraic concepts, graphs, probability, statistics, and problem-solving.

A spiral approach is used with various topics being indexed as to unit and page. Specific learning experiences are suggested for each unit. Suggested use of mathematical laboratory materials is found throughout. (MP)

2514 ED 167 386
Berger, Jennie Lombardi, Alice
Mathematics, Grade 2. Curriculum Bulletin No. 11.
New York City Board of Education, Brooklyn, N.Y. Div. of Educational Planning and Support.
Pub Date—78
Note—191p.; For related document, see SE 026 766; Not available in hard copy due to copyright restrictions
Available from—Board of Education of the City of New York, Publications Sales Office, 110 Livingston St., Brooklyn, New York 11201 ($3.75; Make check payable to Auditor, Board of Education)
Pub Type— Guides - Classroom - Teacher (052) — Collected Works - Serials (022)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Curriculum, Curriculum Guides, Elementary Education, *Elementary School Mathematics, *Grade 2, *Instruction, Learning Activities, *Spiral Curriculum, *Teaching Guides

A comprehensive mathematics program for grade 2 is presented in 58 units. These units are organized around four central themes: (1) number and numeration; (2) operations with numbers; (3) geometry and measurement; and (4) graphs, problem solving, and probability. A spiral approach is used with various topics being indexed as to unit and page. Specific learning experiences are suggested for each unit. Suggested use of mathematical laboratory materials is found throughout. (MP)

2515 ED 166 041
Mathematics for Georgia Schools, Volume I: Primary Grades.
Georgia State Dept. of Education, Atlanta. Office of Instructional Services.
Pub Date—78
Note—139p.; For related document, see SE 026 555
Pub Type— Guides - General (050)
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—*Curriculum, Elementary Education, *Elementary School Mathematics, Geometry, *Instruction, Measurement, Number Concepts, *Primary Education, Problem Solving, Set Theory, Statistics, *Teaching Guides

This guide is for the use of teachers in the primary grades and is organized around six concepts: sets, numbers and numeration; operations, their properties and number theory; relations and functions; geometry; measurement; and probability and statistics. Objectives and sample activities are presented for each concept. Separate sections deal with the processes of problem solving and computation. A section on updating curriculum includes discussion of continuing program improvement, evaluation of pupil progress, and utilization of media. (MP)

2516 ED 162 873
Chinn, William G. And Others
Studies in Mathematics, Volume XIII: Inservice Course in Mathematics for Primary School Teachers. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—66
Note—364p.
Pub Type— Books (010)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Arithmetic, Curriculum, *Disadvantaged, Elementary Education, *Elementary School Mathematics, *Inservice Teacher Education, *Instructional Materials, Mathematics, Mathematics Education, Teaching Guides, *Textbooks
Identifiers—School Mathematics Study Group

This is a SMSG inservice textbook for primary school teachers. One of the goals of the book is to promote the teaching of mathematics in accord with a conceptual development of mathematical ideas. The authors indicate that rote learning is frequently considered the only way to learn mathematics, especially for culturally deprived children. A feature of this text is an attempt to attend to learning problems that may be associated with the culturally disadvantaged. Other features of the text include sections in each chapter dealing with applications to teaching and frequently asked questions. Chapter topics include: (1) description of culturally disadvantaged children; (2) sets; (3) comparing sets; (4) whole numbers; (5) set operations; (6) introduction to geometry; (7) numeration-naming numbers; (8) addition; (9) multiplication; (10) subtraction; (11) division; (12) elements of geometry; (13) addition and subtraction techniques; (14) introducing rational numbers; (15) premeasurement concepts; (16) multiplication and division techniques; (17) measurement; and (18) structure. (MP)

2517 ED 144 837
Beatty, Leslie And Others
Mathematics for the Elementary School, Book 2. Teacher's Commentary, Unit No. 55. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—64
Note—547p.; For related documents, see SE 023 139-142
Pub Type— Guides - General (050)
EDRS Price - MF02/PC22 Plus Postage.
Descriptors—Curriculum Guides, Elementary Education, *Elementary School Mathematics, Grade 2, Instruction, *Instructional Materials, *Lesson Plans, Mathematics Education, *Number Concepts, Primary Education, *Teaching Guides
Identifiers—*School Mathematics Study Group

Detailed lesson plans are provided in this teacher's guide for the SMSG text materials for grade 2. Included are chapters on sets and numbers (review), addition and subtraction (review), sets of points, addition and subtraction (extension), linear measurement, computing sums and differences, congruence of angles and triangles, arrays and multiplication, and division and rational numbers. Mathematical background, objectives, vocabulary, and materials are presented, followed by suggested discussion questions and activities. Answers for worksheets are also included. (MS)

2518 ED 144 836
Beatty, Leslie And Others
Mathematics for the Elementary School, Book 1. Teacher's Commentary, Unit No. 53. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—64
Note—459p.; For related documents, see SE 023 139-143
Pub Type— Guides - General (050)
EDRS Price - MF01/PC19 Plus Postage.
Descriptors—Curriculum Guides, Elementary Education, *Elementary School Mathematics, Grade 1, Instruction, *Instructional Materials, *Lesson Plans, Mathematics Education, *Number Concepts, Primary Education, *Teaching Guides
Identifiers—*School Mathematics Study Group

This teacher's guide for the SMSG text materials for grade 1 considers ten chapters: sets and numbers, numerals and the number line, sets of ten, introduction to addition and subtraction, recognizing geometric figures, place value and numeration, addition and subtraction, arrays and multiplication, partitions and rational numbers, and linear measurement. Mathematical background is presented for each chapter, followed by lesson plans detailing suggested activities and questions. Objectives, needed materials, vocabulary, and answers to worksheets are included. (MS)

2519 ED 144 835
Beatty, Leslie And Others
Mathematics for the Elementary School, Book K. Teacher's Commentary, Unit No. 51. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—64
Note—117p.; For related documents, see SE 023 139-143; Contains occasional light type
Pub Type— Guides - General (050)
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—Curriculum Guides, Elementary Education, *Elementary School Mathematics, *Instructional Materials, Kindergarten, *Lesson Plans, Mathematics Education, *Number Concepts, Primary Education, *Teaching Guides
Identifiers—*School Mathematics Study Group

In this guide for the SMSG text materials for kindergarten, an overview describes the philosophy behind the program. Mathematical background is presented, followed by activities to develop concepts on sets, recognition of geometric figures, comparison of sets, subsets, joining and removing, comparison of sizes and shapes, ordering, using geometric figures, and using numbers with sets. Teaching procedures and questions are detailed. Materials, books, and vocabulary are also listed. (MS)

2520 ED 144 791
Chinn, William G. And Others
Mathematics for the Elementary School, Book K. Teacher's Commentary, Special Edition (Revised).
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—66
Note—112p.; Contains occasional light and broken type
Pub Type— Guides - General (050)
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—*Arithmetic, *Disadvantaged Youth, Elementary Education, *Elementary School Mathematics, Geometry, Kindergarten, Mathematics, *Number Concepts, Set Theory, *Teaching Guides
Identifiers—*School Mathematics Study Group

This is the Teacher's Commentary for Mathematics for the Elementary School, Book K, Special Edition. The writers have relied on the existing SMSG kindergarten and first grade materials as a framework. This special edition is designed to meet the needs of disadvantaged children. Included in the Commentary are background information for the teacher, discussion of activities in the text, and answers to activities and exercises. (RH)

2521 ED 143 535
Chinn, William G. And Others
Mathematics for the Elementary School, Book 1 (Part 2). Teacher's Commentary. Special Edition (Revised).
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—66
Note—281p.; For related documents, see SE 023 011-013; Contains occasional light and broken type
Pub Type— Guides - General (050)
EDRS Price - MF01/PC12 Plus Postage.
Descriptors—*Arithmetic, *Disadvantaged Youth, Elementary Education, *Elementary School Mathematics, Geometry, Grade 1, Mathematics, *Number Concepts, *Teaching Guides
Identifiers—*School Mathematics Study Group

This is the Teacher's Commentary for Mathematics for the Elementary School, Book 1 (Part 2), Special Edition. The writers have relied on the existing SMSG kindergarten and first grade materials as a framework. This special edition is designed to meet the needs of disadvantaged children. Included in the Commentary are background information for the teacher, discussion of activities in the text, and answers to activities and exercises. (RH)

2522 ED 143 534
Chinn, William G. And Others
Mathematics for the Elementary School, Book 1 (Part 2). Student Text. Special Edition (Revised).
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—66
Note—152p.; For related documents, see SE 023 011-014
Pub Type— Books (010)
EDRS Price - MF01/PC07 Plus Postage.
Descriptors—*Arithmetic, Disadvantaged Youth, Elementary Education, *Elementary School Mathematics, Geometry, Grade 1, *Instructional Materials, Mathematics, *Number Concepts,

*Textbooks
Identifiers—*School Mathematics Study Group

In this text, the writers have relied on the SMSG kindergarten and first grade materials as a framework. This special edition is designed to meet the needs of disadvantaged children. Chapters 5 through 10 are included in this part. Chapter topics include: (5) Recognizing Geometric Figures; (6) Place Value and Numeration; (7) Addition and Subtraction; (8) Arrays and Multiplication; (9) Partitions and Rational Numbers; and (10) Linear Measurement. The activities and exercises include brief directions. (RH)

2523 ED 143 533
Chinn, William G. And Others
Mathematics for the Elementary School, Book 1 (Part 1). Teacher's Commentary. Special Edition (Revised).
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—66
Note—248p.; For related documents, see SE 023 011-014; Contains occasional light and broken type
Pub Type— Guides - General (050)
EDRS Price - MF01/PC10 Plus Postage.
Descriptors—*Arithmetic, *Disadvantaged Youth, Elementary Education, *Elementary School Mathematics, Grade 1, Mathematics, Mathematics Education, *Number Concepts, Set Theory, *Teaching Guides
Identifiers—*School Mathematics Study Group

This is the Teacher's Commentary for Mathematics for the Elementary School, Book 1 (Part 1), Special Edition. The writers have relied on the existing SMSG kindergarten and first grade materials as a framework. This special edition is designed to meet the needs of disadvantaged children. Included in the Commentary are background information to the teacher, discussion of activities in the text, and answers to activities and exercises. (RH)

2524 ED 143 532
Chinn, William G. And Others
Mathematics for the Elementary School, Book 1 (Part 1). Student Text. Special Edition (Revised).
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—66
Note—138p.; For related documents, see SE 023 012-014
Pub Type— Books (010)
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—*Arithmetic, Disadvantaged Youth, Elementary Education, *Elementary School Mathematics, Grade 1, *Instructional Materials, Mathematics, Mathematics Education, *Number Concepts, Set Theory, *Textbooks
Identifiers—*School Mathematics Study Group

This textbook is based on the SMSG kindergarten and first grade materials as a framework. This special edition is designed to meet the needs of disadvantaged children. Chapters in the book include: (1) Sets and Numbers; (2) Numerals and the Number Line; (3) Sets of Ten; and (4) Introduction to Addition and Subtraction. The student text contains a variety of activities and exercises with limited directions. Detailed instructions for the teacher and background materials are included in the Teacher's Commentary. (RH)

2525 ED 133 171
Mathematics Baseline Instructional Units, Appendix D.
Dallas Independent School District, Tex.
Pub Date—[75]
Note—218p.; For related documents, see SE 021 678-680
Pub Type— Guides - General (050)
EDRS Price - MF01/PC09 Plus Postage.
Descriptors—*Curriculum, Elementary Education, *Elementary School Mathematics, Grade 3, Instruction, *Instructional Materials, Mathematics Education, Teaching Guides
Identifiers—Dallas Independent School District TX

This document contains sample units for each of 21 mastery objectives in grade 3 mathematics. Each of these units includes a statement of the mastery objective, a description of what the student should be able to do as a result of completing the activities, a statement of the mathematical concept being covered, teaching suggestions, a list of materials, and text references. (DT)

2526 ED 127 185
Ihrig, Elizabeth A., Ed.
Introducing Multiplication and Division, Kangaroos and Numbers: MINNEMAST Coordinated Mathematics - Science Series, Unit 17.
Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—71
Note—70p.; For related documents, see SE021201-234; Photographs may not reproduce well
Available from—MINNEMAST, Minnemath Center, 720 Washington Ave., S.E., Minneapolis, MN 55414
Pub Type— Guides - General (050)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—*Curriculum Guides, Division, Elementary Education, *Elementary School Mathematics, *Elementary School Science, Experimental Curriculum, *Interdisciplinary Approach, Learning Activities, Mathematics Education, Multiplication, *Number Systems, Primary Education, Process Education, Science Education, Units of Study, Whole Numbers
Identifiers—*MINNEMAST, *Minnesota Mathematics and Science Teaching Project

This volume is the seventeenth in a series of 29 coordinated MINNEMAST units in mathematics and science for kindergarten and the primary grades. Intended for use by second-grade teachers, this unit guide provides a summary and overview of the unit, a list of materials needed, and descriptions of five groups of activities. The purposes and procedures for each activity are discussed. Examples of questions and discussion topics are given, and in several cases ditto masters, stories for reading aloud, and other instructional materials are included in the book. In this unit, multiplication is approached as repeated addition on a number line. In a second set of lessons, multiplication is considered in conjunction with arrays. Addition and multiplication are then compared, and simple fractions are introduced. A final review section is also included. (SD)

2527 ED 127 171
Dyrud, Grace H. Page, Laura M.
Describing and Classifying: MINNEMAST Coordinated Mathematics - Science Series, Unit 3.
Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center.
Spons Agency—National Science Foundation, Washington,, D.C.
Pub Date—71
Note—126p.; For related documents, see SE021201-234; Photographs may not reproduce well
Available from—MINNEMAST, Minnemath Center, 720 Washington Ave., S.E., Minneapolis, MN 55414
Pub Type— Guides - General (050)
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—*Curriculum Guides, Elementary Education, *Elementary School Mathematics, *Elementary School Science, Experimental Curriculum, *Interdisciplinary Approach, Learning Activities, Mathematics Education, Pattern Recognition, Primary Education, Process Education, Science Education, Set Theory, *Units of Study
Identifiers—*MINNEMAST, *Minnesota Mathematics and Science Teaching Project

This volume is the third in a series of 29 coordinated MINNEMAST units in mathematics and science for kindergarten and the primary grades. Intended for use by kindergarten teachers, this unit guide provides a summary and overview of the unit, a list of materials needed, and descriptions of four groups of activities. The purposes and procedures for each activity are discussed. Examples of questions and discussion topics are given, and in several cases ditto masters, stories for reading aloud, and other instructional materials are included in the book. This unit deals with sets of objects, with problems of classification and description of objects, and with comparisons of sets. Activities described use property blocks and other objects in game, puzzle and story situations to develop conservation, and the basic notions of set theory. (SD)

2528 ED 113 167
White, Ruth M.
A Process Approach to Learning Arithmetic "First Year."
Allegheny County Schools, Pittsburgh, Pa. Exceptional Children's Program.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—73
Note—126p.
Pub Type— Guides - General (050)
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—Arithmetic, Basic Skills, Curriculum, Curriculum Guides, *Elementary School Mathematics, Grade 1, *Learning Activities, *Low Achievement, Mathematics Education, *Number Concepts, Primary Education, *Special Education, Worksheets
Identifiers—Elementary Secondary Education Act Title III

This curriculum guide was developed for low achievers and students needing special programs in first-grade mathematics. Modeled after the "Science-A Process Approach" curriculum, the program consists of an integrated series of learning activities. Master worksheets for recommended activities are included in the guide. The curriculum is divided into ten units. The first unit deals with the concept of numerosity and with the first three (whole) numbers. Subsequent units each deal with a single whole number. Activities involve printing the numeral as well as associating the numeral with appropriate sets. A list of objectives and pre- and posttests are provided for each unit. (SD)

2529 ED 107 534
Payne, Joseph N., Ed.
Mathematics Learning in Early Childhood.
National Council of Teachers of Mathematics, Inc., Washington, D.C.
Pub Date—75
Note—300p.; NCTM 37th Yearbook
Available from—National Council of Teachers of Mathematics, Inc., 1906 Association Drive, Reston, VA 22091 ($11 for NCTM members, single copy only; $12 to general public; 2-9 copies, 10 percent off the list price; 10 or more copies, 20 percent off the list price)
Pub Type— Reports - Descriptive (141)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Curriculum, Elementary Education, *Elementary School Mathematics, Experiential Learning, Geometry, Instruction, *Learning, Literature Reviews, *Mathematics Education, Measurement, Number Concepts, Problem Solving, *Yearbooks
Identifiers—*National Council of Teachers of Mathematics

This yearbook presents many aspects of mathematics learning by children between the ages of three and eight. Addressed to teachers of primary school children, the book begins with chapters discussing learning and cognition, the primary curriculum, and research on mathematics learning at this age level. Eight subsequent chapters deal with the teaching of specific mathematics content: problem solving; mathematical experiences; number and numeration; operations on whole numbers; fractional numbers; geometry; measurement; and relations, number sentences, and other topics. The final chapter discusses curricular change. A major theme throughout the book is the importance of experience to learning, and the building of new knowledge on the foundation these experiences provide. The book is designed to provide easy reference to both general information, such as answers to research questions, and suggested classroom activities related to specific topics. Many illustrations, the use of two-color printing, and a detailed index aid the user in this regard. (SD)

2530 ED 092 409
Elam, Helen And Others
Mathematics Program for Grade 1, De Soto Parish Curriculum Guide.
DeSoto Parish School Board, Mansfield, La.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—Aug 71
Note—341p.
Pub Type— Guides - General (050)
EDRS Price - MF01/PC14 Plus Postage.
Descriptors—Addition, *Curriculum Guides, *Elementary School Mathematics, Fractions, Geometric Concepts, *Grade 1, Instruction,

*Instructional Materials, Measurement, Number Concepts, Subtraction, Teaching Guides, *Teaching Methods, Tests, Whole Numbers
Identifiers—Elementary Secondary Education Act Title III

A program of mathematics instruction for grade one is provided in this curriculum guide. The teaching goal of each lesson is stated in the Purpose section. Visual aids and manipulative materials useful in developing each lesson are suggested and additional teaching aids are listed. Suggestions for teaching the lessons are separated into three distinct categories: Prebook Activities, Using the Page, and Postbook Activities. Selected activities that provide greater challenge for those pupils who excel are included. Each unit concludes with a self-evaluation page entitled Checkup Time. Additional reviews and tests are also written for each unit. Topics covered are: elementary number concepts; sets and one-to-one matching; cardinal numbers and numerals 0-9; addition and subtraction combinations through nine; simple concepts of fractions; measurement and geometrical concepts; operations with tens; measurement and number patterns; and some addition and subtraction using place value. A time budget chart lists the recommended pace for completion of the proposed curriculum. (JP)

2531 ED 089 988
Mathematics Grades K-3: A Teacher's Guide.
Buffalo Public Schools, N. Y. Div. of Curriculum Evaluation and Development.
Pub Date—68
Note—43p.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Course Content, Curriculum, *Curriculum Guides, *Elementary School Mathematics, *Instruction, *Instructional Materials, Teaching Guides

This curriculum guide presents the outlines for course content in mathematics in grades K-3. For each grade level general overviews are given of the goals and objectives of the course. A detailed explanation of the content outline includes suggestions as to method of presentation. The mathematical concepts are explained using a technically correct approach. This is intended primarily for the teacher, so that the foundations she builds with the pupils in an informal way are based on sound, accurate mathematical principles. (JP)

2532 ED 071 919
Chilcote, Elinor Blaine, Jeannie
Happy Math + Happy Teacher = Happy Kids.
Pub Date—72
Note—210p.
Available from—Scott Resources, Inc., Box 2121, Fort Collins, Colorado 80521 ($9.95 plus shipping)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Elementary School Mathematics, *Experiential Learning, Games, *Instructional Materials, *Laboratory Procedures, Manipulative Materials, Mathematical Enrichment, *Mathematics Education, Mathematics Instruction

Directions and materials for 57 mathematical games and activities are provided in this commercially-prepared package. Suggested use is with preschool through third grade levels. General content areas include functions and graphs, geometry, logical thinking, measurement, numbers and operations, problem solving, sets, and statistics and probability. (DT)

2533 ED 065 502
Reed, Mary Jane
Mathematics in the Kindergarten.
Bloomington Public Schools, Minn.
Pub Date—69
Note—38p.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Curriculum Guides, *Early Childhood Education, *Kindergarten, *Mathematics Curriculum, *Number Concepts

GRADES OR AGES: Kindergarten. SUBJECT MATTER: Mathematics. ORGANIZATION AND PHYSICAL APPEARANCE: The guide has seven sections: 1) emphasis in mathematics; 2) three approaches–use of number in daily activities and content areas, manipulative materials and mathematically structured materials, and structuring special activities and/or problems; 3) number and operations, the natural numbers–counting and numeration; 4) elements of a set; 5) measurement and estimation–meaning of measurement; 6) geometry; and 7) bibliography of books for K-3. The guide is lithographed and spiral bound with a soft cover. OBJECTIVES AND ACTIVITIES: General objectives are discussed in the first section. Sections 2-6 contain detailed descriptions of activities. INSTRUCTIONAL MATERIALS: Materials needed are described in the various activities, and there is also a 69-item bibliography. STUDENT ASSESSMENT: None. (MBM)

2534 ED 052 970
Gladstone, Blanche C. And Others
Mathematics, Grade 1, Scope and Sequence.
New York City Board of Education, Brooklyn, N.Y. Bureau of Curriculum Development.
Report No.—Curric-Bull-2
Pub Date—71
Note—24p.
Available from—New York City Board of Education, Publications Sales Office, 110 Livingston Street, Brooklyn, New York 11201 ($1.00)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Algebra, *Curriculum Guides, *Elementary School Mathematics, Geometry, *Grade 1, Graphs, Measurement, Set Theory, Statistics

Provided are the scope and sequence of mathematics topics for Grade 1 to be implemented by teachers and supervisors. The guide is presented in the form of 66 units, each being organized around the themes of (1) sets, numbers, and numeration; (2) operations; (3) geometry and measurement; and (4) algebraic concepts, graphs, probability, and statistics. The sequence is structured to provide a spiral or cyclic approach for presentation of the concepts and skills. (Author/JG)

2535 ED 048 154
Activities for Building Concepts of Logical Thinking. Developmental Skills Series, Booklet III.
University City School District, Mo.
Spons Agency—Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No.—BR-6-1328
Pub Date—Oct 68
Contract—OEC-3-7-061328-0322
Note—150p.
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—Classification, *Concept Formation, Conservation (Concept), *Curriculum Guides, *Fundamental Concepts, *Kindergarten, *Preschool Curriculum, Serial Ordering, Symbolic Learning

GRADES OR AGES: Four-, five-, and six-year olds. SUBJECT MATTER: Cognitive areas of symbolism, classification, conservation, seriation, spatial relationship, and temporal relationships. ORGANIZATION AND PHYSICAL APPEARANCE: The guide is divided into six sections, one for each of the above cognitive areas. Each section lists materials and describes activities; illustrations are interspersed. The guide is mimeographed and spiral bound with a soft cover. OBJECTIVES AND ACTIVITIES: A short list of general activities is given for each cognitive area, followed by detailed instructions for numerous specific activities–over 100 in all. A class inventory lists activities a child should be able to do at different ages. INSTRUCTIONAL MATERIALS: A list of materials accompanies each list of general activities and each description of a specific activity. STUDENT ASSESSMENT: No provision other than the class inventory is made. OPTIONS: The guide is suggestive only. It makes no mention of timing or means of incorporating the activities into a total program. (RT)

2536 ED 034 699
Mathematics Part Two, Pre-Kindergarten, Kindergarten, Grade One, Part II. Curriculum Bulletin, 1966-67 Series, No. 6B.
New York City Board of Education, Brooklyn, N.Y. Bureau of Curriculum Development.
Pub Date—69
Note—195p.
Available from—New York City Board of Education, Publications Sales Office, 110 Livingston Street, Brooklyn, New York 11201 ($3.00)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Arithmetic, *Curriculum Development, *Elementary School Mathematics, *Guidelines, *Instruction, Mathematics, *Modern Mathematics, Number Concepts

This curriculum bulletin is the second part of "Mathematics–Pre-Kindergarten, Kindergarten, and Grade One." This is a developing curriculum program that incorporates the pre-kindergarten into the educational system and reorganizes mathematics materials in the early childhood years. The materials in this bulletin deal with numbers and operations with numbers, early levels of number-line concepts, geometric concepts, and fractional parts. Included also is a suggested plan for introducing topics and subtopics and a scope and sequence for the indicated grades. (RP)

2537 ED 025 421
Mathematics, Grade 2, Grade 3, Scope and Sequence.
New York City Board of Education, Brooklyn, N.Y. Bureau of Curriculum Development
Report No.—00-6002-21
Pub Date—68
Note—29p.
Available from—New York City Board of Education, Publications Sales Office, 110 Livingston Street, Brooklyn, New York 11201 ($1.00).
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Curriculum Development, *Elementary School Mathematics, Geometry, Grade 2, Grade 3, *Mathematics, Number Concepts, Sequential Learning, *Teaching Guides
Identifiers—New York, New York (New York)

This publication is designed to extend and strengthen the computational skills and mathematical understandings of children in Grades 2 and 3. It presents an overall scope and detailed sequence for implementation by teachers and supervisors, based on the modern program introduced in pre-kindergarten, kindergarten and first grade classes. The scope and sequence for this publication is presented in the form of units which are organized around four central themes–(1) Sets, Number, and Numeration, (2) Operations, (3) Geometry and Measurement, and (4) Problem Solving. The sequence is structured to provide a spiral or cyclic approach for presentation of the concepts and skills. (RP)

2539 ED 024 599
Mathematics: Pre-Kindergarten, Kindergarten, and Grade One, Part One.
New York City Board of Education, Brooklyn, N.Y.
Pub Date—66
Note—70p.
Available from—New York City Board of Education, Publications Sales Office, 110 Livingston Street, Brooklyn, New York 11201 ($1.50).
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Arithmetic, Course Organization, *Curriculum, *Elementary School Mathematics, Grade 1, Instruction, Kindergarten, Learning Activities, Mathematical Concepts, *Mathematics, Number Concepts, *Teaching Guides
Identifiers—New York, New York (New York)

This publication is the first part of a series "Mathematics - Pre-Kindergarten, Kindergarten, and Grade One." This bulletin is a part of the developing curriculum program that incorporates the pre-kindergarten into the educational system and reorganizes mathematics materials in the early childhood years. Part One of the program presented in this bulletin deals mainly with sets and subsets, numbers in sets, and number names. Part Two, published in 1967, deals with numbers and operations with numbers, early levels of number-line concepts, geometric concepts and fractional parts. It is expected that this material will serve as a sound foundation for future curriculum developments in the area of mathematics. (RP)

VARIED TOPICS: 4-8

2600 ED 175 707
Mathematics for the Elementary School: Selected Units E-4150. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—62
Note—151p.; Contains occasional light and broken type
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC07 Plus Postage.
Descriptors—Curriculum, Elementary Education, *Elementary School Mathematics, *Fractions, Grade 4, Instruction, Mathematics Education, *Number Concepts, *Set Theory
Identifiers—*School Mathematics Study Group

This booklet consists of three units selected from the SMSG text materials for grade 4, "Mathematics for the Elementary School." These three units were selected as being necessary for students about to undertake the grade 5 SMSG text materials. Chapter topics include concept of sets, sets of points, and concept of fractional numbers. (MP)

2601 ED 175 704
Intermediate Mathematics Study Guide.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—65
Note—37p.
Pub Type— Reference Materials (130)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Algebra, *Bibliographies, Curriculum, Geometry, Higher Education, Inservice Education, *Instruction, Mathematics, *Mathematics Education, Secondary Education, Secondary School Mathematics, *Study Guides, *Trigonometry
Identifiers—Functions (Mathematics), *School Mathematics Study Group

This SMSG study guide is intended to provide teachers who use "Intermediate Mathematics," as a textbook with references to materials which will help them to gain a better understanding of the mathematics contained in the text. For each chapter of the text a brief resume of its content is followed by a list of annotated references which are classified as elementary or advanced. Chapter topics include: (1) number systems; (2) coordinate geometry; (3) functions; (4) complex number systems; (5) equations in two variables; (6) systems of equations; (7) logarithms; (8) trigonometry; (9) vectors; (10) polar form; (11) sequences; (12) permutations; and (13) algebraic structures. (MP)

2602 ED 175 648
CSMP Mathematics for the Intermediate Grades Part IV, Teacher's Guide. The Languages of Strings and Arrows. Geometry and Measurement. Probability and Statistics.
Central Midwestern Regional Educational Lab., St. Ann, Mo.
Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Pub Date—78
Note—383p.; For related documents, see SE 027 875-893; Not available in hard copy due to copyright restrictions; Contains colored charts and activities which may not reproduce well
Pub Type— Guides - Classroom - Teacher (052)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Curriculum Guides, *Elementary School Mathematics, Games, Geometry, *Instructional Materials, Intermediate Grades, Mathematical Logic, *Mathematics Curriculum, Mathematics Instruction, Measurement, Probability, Rational Numbers, Set Theory, Statistics, Teaching Guides, Textbooks, Workbooks
Identifiers—*Comprehensive School Mathematics Program

This guide represents the final experimental version of a pilot project which was conducted in the United States between 1973 and 1976. The ideas and the manner of presentation are based on the works of Georges and Frederique Papy. They are recognized for having introduced colored arrow drawings ('papygrams") and models of our numeration system (the Papy "minicomputer") into the teaching of mathematics at the elementary and secondary level in Belgium. This program follows the "spiral approach." This guide contains the Language of Strings and Arrows; Geometry and Measurement; and Probability and Statistics. The languages are intended to provide a precise way to communicate ideas about classification and relations. The String Game is again presented to encourage critical thinking. Measurement and parallelism are included in the Geometry section of the guide. Random number stories and probability games are a part of the section on Probability and Statistics. (Author/SA)

2603 ED 175 647
CSMP Mathematics for the Intermediate Grades Part IV, Teacher's Guide. The World of Numbers. Experimental Version.
Central Midwestern Regional Educational Lab., St. Ann, Mo.
Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Pub Date—78
Note—350p.; For related documents, see SE 027 875-893; Contains colored charts and activities which may not reproduce well; Not available in hard copy due to copyright restrictions
Pub Type— Guides - Classroom - Teacher (052)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Algorithms, Arithmetic, *Curriculum Guides, Division, *Elementary School Mathematics, Instructional Materials, Integers, Intermediate Grades, Mathematical Logic, *Mathematics Curriculum, Mathematics Instruction, Multiplication, *Number Concepts, Rational Numbers, Teaching Guides, Textbooks, Worksheets
Identifiers—*Comprehensive School Mathematics Program

This guide represents the final experimental version of a pilot project which was conducted in the United States between 1973 and 1976. The ideas and the manner of presentation are based on the works of Georges and Frederique Papy. They are recognized for having introduced colored arrow drawings ('papygrams") and models of our numeration system (the Papy "minicomputer") into the teaching of mathematics at the elementary and secondary level in Belgium. This program follows the "spiral approach." This guide includes the following topics: (1) multiplication; (2) multiples and divisors; (3) rational numbers; (4) abacuses and algorithmic thinking; (5) standard algorithms of arithmetic; (6) composition; and (7) hand-calculator puzzles. Old and new concepts are covered within these topics. The situations provided are intended to develop problem-solving skills and an understanding of mathematical ideas and concepts in the world of numbers. (Author/SA)

2604 ED 175 646
Armstrong, Richard And Others
CSMP Mathematics for the Intermediate Grades Part IV, Teacher's Guide. General Introduction. Workbooks. Experimental Version.
Central Midwestern Regional Educational Lab., St. Ann, Mo.
Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Pub Date—78
Note—185p.; For related documents, see SE 027 875-893; Contains colored charts and activities which may not reproduce well; Not available in hard copy due to copyright restrictions
Pub Type— Guides - Classroom - Teacher (052)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Curriculum Guides, *Elementary School Mathematics, Instructional Materials, Intermediate Grades, *Mathematical Logic, *Mathematics Curriculum, Mathematics Instruction, *Number Concepts, Teaching Guides, Textbooks, Workbooks
Identifiers—*Comprehensive School Mathematics Program

This guide represents the final experimental version of a pilot project which was conducted in the United States between 1973 and 1976. The ideas and the manner of presentation are based on the works of Georges and Frederique Papy. They are recognized for having introduced colored arrow drawings ('papygrams") and models of our numeration system (the Papy "minicomputer") into the teaching of mathematics at the elementary and secondary level in Belgium. This program follows the "spiral approach." This guide includes the general introduction and the workbooks. Six workbooks are presented which should offer students the opportunity to review ideas they have met before, apply their knowledge to new situations, and learn to read by using mathematics workbooks and story workbooks. The workbooks are written at three levels of difficulty and students are encouraged to work at the easiest level. Questions most frequently asked by teachers about the program are answered in this guide. (Author/SA)

2605 ED 175 645
CSMP Mathematics for the Intermediate Grades Part III, Teacher's Guide. The World of Numbers. Experimental Version.
Central Midwestern Regional Educational Lab., St. Ann, Mo.
Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Pub Date—78
Note—407p.; For related documents, see SE 027 875-893; Contains colored charts and activities which may not reproduce well; Not available in hard copy due to copyright restrictions
Pub Type— Guides - Classroom - Teacher (052)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Arithmetic, *Curriculum Guides, Decimal Fractions, Division, *Elementary School Mathematics, *Instructional Materials, Integers, Mathematical Logic, *Mathematics Curriculum, Mathematics Instruction, Multiplication, *Number Concepts, Rational Numbers, Teaching Guides, Textbooks, Worksheets
Identifiers—*Comprehensive School Mathematics Program

This guide represents the final experimental version of a pilot project which was conducted in the United States between 1973 and 1976. The ideas and the manner of presentation are based on the works of Georges and Frederique Papy. They are recognized for having introduced colored arrow drawings ('papygrams") and models of our numeration system (the Papy "minicomputer") into the teaching of mathematics at the elementary and secondary level in Belgium. This program follows the "spiral approach." This guide reviews some basic numerical activities and introduces some new concepts. Topics included are composition, multiples and divisors, combinatorics, the minicomputer, decimals, multiplication, fractions and division. The standard minicomputer moves are reviewed. (Author/SA)

2606 ED 175 644
CSMP Mathematics for the Intermediate Grades Part III, Teacher's Guide. The Languages of Strings and Arrows. Geometry and Measurement. Probability and Statistics. Experimental Version.
Central Midwestern Regional Educational Lab., St. Ann, Mo.
Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Pub Date—78
Note—289p.; For related documents, see SE 027 876-893; Contains colored charts and activities which may not reproduce well; Not available in hard copy due to copyright restrictions
Pub Type— Guides - Classroom - Teacher (052)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Curriculum Guides, *Elementary School Mathematics, Games, Geometry, *Instructional Materials, Intermediate Grades, Mathematical Logic, *Mathematics Curriculum, Mathematics Instruction, Measurement, Probability, Rational Numbers, Statistics, Teaching Guides, Textbooks, Workbooks
Identifiers—*Comprehensive School Mathematics Program

This guide represents the final experimental version of a pilot project which was conducted in the United States between 1973 and 1976. The ideas and the manner of presentation are based on the works of Georges and Frederique Papy. They are recognized for having introduced colored arrow drawings ('papygrams") and models of our numeration system (the Papy "minicomputer") into the teaching of mathematics at the elementary and secondary level in Belgium. This program follows the "spiral approach." An explanation is provided of the languages of strings and arrows or classification and relations. This guide includes functions as well. The string game is presented as a means of using sets to stimulate logical thinking. Geometry, measurement, probability, and statistics comprise the latter half of the guide. (Author/SA)

2607 ED 175 643

Harpel, Jim And Others

CSMP Mathematics for the Intermediate Grades Part III, Teacher's Guide [and] Worksheets. General Introduction. Workbooks. Experimental Version.

Central Midwestern Regional Educational Lab., St. Ann, Mo.

Spons Agency—National Inst. of Education (DHEW), Washington, D.C.

Pub Date—78

Note—382p.; For related documents, see SE 027 875-893; Not available in hard copy due to copyright restrictions; Contains colored charts and activities which may not reproduce well

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—*Curriculum Guides, *Elementary School Mathematics, Instructional Materials, Intermediate Grades, *Mathematical Logic, *Mathematics Curriculum, Mathematics Instruction, *Number Concepts, Set Theory, Teaching Guides, Textbooks, Workbooks

Identifiers—*Comprehensive School Mathematics Program

This guide represents the final experimental version of a pilot project which was conducted in the United States between 1973 and 1976. The ideas and the manner of presentation are based on the works of Georges and Frederique Papy. They are recognized for having introduced colored arrow drawings ('papygrams") and models of our numeration system (the Papy "minicomputer") into the teaching of mathematics at the elementary and secondary level in Belgium. This program follows the "spiral approach." Six workbooks are included which provide students with opportunities to review ideas they have met before, apply their knowledge to new situations, and learn to read by using mathematics workbooks and story-workbooks. The workbooks are written at three levels of difficulty and students are encouraged to work at the easiest level. Questions most frequently asked by teachers about the program are answered in this guide. (Author/SA)

2608 ED 175 642

CSMP Mathematics for the Intermediate Grades Part II, Teacher's Guide [and] Worksheets. The World of Numbers. Experimental Version.

Central Midwestern Regional Educational Lab., St. Ann, Mo.

Spons Agency—National Inst. of Education (DHEW), Washington, D.C.

Pub Date—77

Note—489p.; For related documents, see SE 027 875-893; Not available in hard copy due to copyright restrictions; Contains colored charts and activities which may not reproduce well

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF02 Plus Postage. PC Not Available from EDRS.

Descriptors—Addition, *Arithmetic, Curriculum Guides, Decimal Fractions, Division, *Elementary School Mathematics, Instructional Materials, Integers, Intermediate Grades, Mathematical Logic, *Mathematics Curriculum, *Mathematics Instruction, Multiplication, *Number Concepts, Rational Numbers, Subtraction, Teaching Guides, Textbooks, Workbooks

Identifiers—*Comprehensive School Mathematics Program

This guide represents the final experimental version of a pilot project which was conducted in the United States between 1973 and 1976. The ideas and the manner of presentation are based on the works of Georges and Frederique Papy. They are recognized for having introduced colored arrow drawings ('papygrams") and models of our numeration system (the Papy "minicomputer") into the teaching of mathematics at the elementary and secondary level in Belgium. This program follows the "spiral approach." In this guide, there is a review of some basic numerical activities which stem from the minicomputer. The standard minicomputer moves are reviewed. Several numerical games are given with the intention of providing a review of number concepts. (Author/SA)

2609 ED 175 641

CSMP Mathematics for the Intermediate Grades Part II, Teacher's Guide. The Languages of Strings and Arrows. Geometry and Measurement. Probability and Statistics. Experimental Version.

Central Midwestern Regional Educational Lab., St. Ann, Mo.

Spons Agency—National Inst. of Education (DHEW), Washington, D.C.

Pub Date—77

Note—325p.; For related documents, see SE 027 875-893; Not available in hard copy due to copyright restrictions; Contains colored charts and activities which may not reproduce well

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—*Curriculum Guides, *Elementary School Mathematics, Geometry, *Instructional Materials, Intermediate Grades, Mathematical Logic, *Mathematics Curriculum, Mathematics Instruction, Measurement, Probability, Rational Numbers, Statistics, Teaching Guides, Textbooks, Workbooks

Identifiers—*Comprehensive School Mathematics Program

This guide represents the final experimental version of a pilot project which was conducted in the United States between 1973 and 1976. The ideas and the manner of presentation are based on the works of Georges and Frederique Papy. They are recognized for having introduced colored arrow drawings ('papygrams") and models of our numeration system (the Papy "minicomputer") into the teaching of mathematics at the elementary and secondary level in Belgium. This program follows the "spiral approach." An explanation is provided of the languages of strings and arrows or classification and relations. This guide emphasizes functions as well. The String Game is presented as a means of using sets to stimulate logical thinking. Geometry, Measurement, Probability, and Statistics comprise the latter half of the guide. (Author/SA)

2610 ED 175 640

Harpel, Jim And Others

CSMP Mathematics for the Intermediate Grades Part II, Teacher's Guide. General Introduction. Workbooks. Experimental Version.

Central Midwestern Regional Educational Lab., St. Ann, Mo.

Spons Agency—National Inst. of Education (DHEW), Washington, D.C.

Pub Date—77

Note—198p.; For related documents, see SE 027 875-893; Not available in hard copy due to copyright restrictions; Contains colored charts and activities which may not reproduce well

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—*Curriculum Guides, *Elementary School Mathematics, Instructional Materials, Intermediate Grades, *Mathematical Logic, Mathematics Curriculum, *Mathematics Instruction, Multiplication, *Number Concepts, Teaching Guides, Textbooks, Workbooks

Identifiers—*Comprehensive School Mathematics Program

This guide represents the final experimental version of a pilot project which was conducted in the United States between 1973 and 1976. The ideas and the manner of presentation are based on the works of Georges and Frederique Papy. They are recognized for having introduced colored arrow drawings ('papygrams") and models of our numeration system (the Papy "minicomputer") into the teaching of mathematics at the elementary and secondary level in Belgium. This program follows the "spiral approach." Suggestions are given for obtaining materials for lessons. A Day-by-Day Guide suggests the organization of the material in an 18-week period. Three workbooks are included which provide students with individualized work. Two story-workbooks are also included. The workbooks are written at three levels of difficulty and students are encouraged to work at the easiest level. Questions most frequently asked about the program by teachers are answered in this guide. (Author/SA)

2611 ED 175 639

Kaufman, Burt And Others

CSMP Mathematics for the Intermediate Grades Part I, Teacher's Guide. General Introduction. Workbooks. Experimental Version.

Central Midwestern Regional Educational Lab., St. Ann, Mo.

Spons Agency—National Inst. of Education (DHEW), Washington, D.C.

Pub Date—76

Note—186p.; For related documents, see SE 027 875-893; Not available in hard copy due to copyright restrictions; Contains colored charts and activities which may not reproduce well

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—*Curriculum Development, *Curriculum Guides, *Elementary School Mathematics, *Instructional Materials, Intermediate Grades, *Mathematics Curriculum, Mathematics Instruction, *Number Concepts, Teaching Guides, Textbooks, Workbooks

Identifiers—*Comprehensive School Mathematics Program

This guide represents the final experimental version of an extended pilot project which was conducted in the United States between 1973 and 1976. The manner of presentation and pedagogical ideas and tools are based on the works of George and Frederique Papy. They are recognized as having introduced colored arrow drawings ('papygrams") and models of our numeration system (the Papy "minicomputer") into the teaching of mathematics at the elementary and secondary level in Belgium. This program follows the "spiral approach." The series emphasizes that a topic may provide children with intuitive leaps which might help them acquire successive pieces of information. Suggestions are presented for obtaining and preparing materials for lessons. Some are available from CSMP. The seven books of the Teacher's Guide for this level are bound into three volumes. This volume contains the General Introduction and the six workbooks. (Author/SA)

2612 ED 175 638

CSMP Mathematics for the Intermediate Grades Part I, Teacher's Guide. The Languages of Strings and Arrows. Geometry and Measurement. Probability and Statistics. Experimental Version.

Central Midwestern Regional Educational Lab., St. Ann, Mo.

Spons Agency—National Inst. of Education (DHEW), Washington, D.C.

Pub Date—76

Note—263p.; For related documents, see SE 027 875-893; Not available in hard copy due to copyright restrictions; Contains colored charts and activities which may not reproduce well

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—*Curriculum Development, *Curriculum Guides, *Elementary School Mathematics, Games, Geometry, *Instructional Materials, Intermediate Grades, *Mathematics Curriculum, Mathematics Instruction, Measurement, Probability, Statistics, Teaching Guides, Textbooks, Workbooks

Identifiers—*Comprehensive School Mathematics Program

This guide represents the final experimental version of an extended pilot project which was conducted in the United States between 1973 and 1976. The manner of presentation and the pedagogical ideas and tools are based on the works of Georges and Frederique Papy. They are recognized as having introduced colored arrow drawings ('papygrams") and models of our numeration system (the Papy "minicomputer") into the teaching of mathematics at the elementary and secondary level in Belgium. The CSMP curriculum follows the "spiral approach." The series emphasizes that a topic may provide children with intuitive leaps which might help them acquire successive pieces of information. An introduction is given to the Language of Strings and Arrows. In the String Game, students are to deal with divisors of numbers. A chapter on logical thinking deals with precise terms in English used to discuss statements concerning various sets. Composition Games reiterates what the students experienced earlier in CSMP. Geometry and Measurement and Probability and Statistics are other topics within the guide. (Author/SA)

2613 ED 175 637
CSMP Mathematics for the Intermediate Grades Part I, Teacher's Guide [and] Worksheets. The World of Numbers. Experimental Version.
Central Midwestern Regional Educational Lab., St. Ann, Mo.
Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Pub Date—76
Note—463p.; For related documents, see SE 027 875-893; Not available in hard copy due to copyright restrictions; Contains colored charts and activities which may not reproduce well
Pub Type— Guides - Classroom - Teacher (052)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Curriculum Development, *Curriculum Guides, Division, *Elementary School Mathematics, Instructional Materials, Integers, *Intermediate Grades, Mathematical Logic, *Mathematics Curriculum, *Mathematics Instruction, Multiplication, *Number Concepts, Rational Numbers, Teaching Guides, Textbooks, Workbooks
Identifiers—*Comprehensive School Mathematics Program

This guide represents the final experimental version of an extended pilot project which was conducted in the United States between 1973 and 1976. The manner of presentation and pedagogical ideas and tools are based on the works of Georges and Frederique Papy. They are recognized as having introduced colored arrow drawings ("papygrams") and models of our numeration system (the Papy "minicomputer") into the teaching of mathematics at the elementary and secondary level in Belgium. The CSMP curriculum follows the "spiral approach." Topics covered in the first half of the text include the minicomputer and arrow pictures, decimal numbers, negative integers, multiplication, an introduction to the rational numbers and division. The second half includes several numerical games. Worksheets for the students accompany the guide. (Author/SA)

2614 ED 173 105
Beatty, Leslie And Others
Mathematics for the Elementary School, Grade 6, Student's Text, Part II, Unit No. 34. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—62
Note—323p.; Contains occasional light and broken type
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC13 Plus Postage.
Descriptors—Curriculum, Division, Elementary Education, *Elementary School Mathematics, Fractions, *Geometry, Grade 6, *Graphs, *Instruction, Mathematics Education, *Number Concepts, Set Theory, *Textbooks
Identifiers—*School Mathematics Study Group

This is part two of a two-part SMSG elementary school text for sixth-grade students. The content is aimed at the development of some of the fundamental concepts of mathematics such as number, numeration, the operations of arithmetic, and intuitive geometry. Chapter topics include division of rational numbers, volume, organizing and describing data, and sets and circles. (MP)

2615 ED 173 104
Beatty, Leslie And Others
Mathematics for the Elementary School, Grade 5, Student's Text, Part II, Unit No. 30. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—62
Note—338p.; For related document, see SE 027 910; Contains occasional light and broken type
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC14 Plus Postage.
Descriptors—Curriculum, Elementary Education, *Elementary School Mathematics, *Fractions, Grade 5, *Instruction, Mathematics Education, *Measurement, *Number Concepts, Ratios (Mathematics), *Textbooks
Identifiers—Area, *School Mathematics Study Group

This is part two of a two-part SMSG elementary school text for fifth-grade students. The content is aimed at the development of some of the fundamental concepts of mathematics such as number, numeration, the operations of arithmetic, and intuitive geometry. Chapter topics include addition and subtraction of rational numbers, measurement of angles, and ratio. (MP)

2616 ED 173 103
Beatty, Leslie And Others
Mathematics for the Elementary School, Grade 5, Student's Text, Part I, Unit No. 29. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—62
Note—266p.; For related document, see SE 027 911
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC11 Plus Postage.
Descriptors—Curriculum, Elementary Education, *Elementary School Mathematics, *Geometry, Grade 5, *Instruction, Mathematics Education, *Number Concepts, Prime Numbers, *Textbooks
Identifiers—*Number Operations, *School Mathematics Study Group

This is part one of a two-part SMSG elementary school text for fifth-grade students. The content is aimed at the development of some of the fundamental concepts of mathematics such as number, numeration, the operations of arithmetic, and intuitive geometry. Chapter topics include extending systems of numeration, factors and primes, extending multiplication and division, and congruence of common geometric figures. (MP)

2617 ED 173 102
Beatty, Leslie And Others
Mathematics for the Elementary School, Grade 4, Student's Text, Part II, Unit No. 26. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—62
Note—271p.; For related document, see SE 027 908; Contains occasional light type
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC11 Plus Postage.
Descriptors—Curriculum, Elementary Education, *Elementary School Mathematics, *Geometry, Grade 4, *Instruction, Mathematics Education, *Measurement, *Number Concepts, *Textbooks
Identifiers—Number Operations, *School Mathematics Study Group

This is part two of a two-part SMSG elementary school text for fourth-grade students. The content is aimed at the development of some of the fundamental concepts of mathematics such as number, numeration, the operations of arithmetic, and intuitive geometry. Chapter topics include properties and techniques of addition and subtraction, techniques of multiplication and division, recognition of common geometric figures, linear measurement, and concept of rational numbers. (MP)

2618 ED 173 101
Beatty, Leslie And Others
Mathematics for the Elementary School, Grade 4, Student's Text, Part I, Unit No. 25. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—62
Note—310p.; For related document. see SE 027 909
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC13 Plus Postage.
Descriptors—Curriculum, Elementary Education, *Elementary School Mathematics, *Geometry, Grade 4, *Instruction, Mathematics Education, *Number Concepts, *Set Theory, *Textbooks
Identifiers—Number Operations, *School Mathematics Study Group

This is part one of a two-part SMSG elementary school text for fourth-grade students. The content is aimed at the development of some of the fundamental concepts of mathematics such as number, numeration, the operations of arithmetic, and intuitive geometry. Chapter topics include concept of sets, numeration, properties and techniques of addition and subtraction, properties of multiplication and division, and sets of points. (MP)

2619 ED 166 042
Mathematics for Georgia Schools, Volume II: Upper Elementary Grades.
Georgia State Dept. of Education, Atlanta. Office of Instructional Services.
Pub Date—78
Note—183p.; For related document, see SE 026 554
Pub Type— Guides - General (050)
EDRS Price - MF01/PC08 Plus Postage.
Descriptors—*Curriculum, Elementary Education, *Elementary School Mathematics, Geometry, *Instruction, Measurement, Number Concepts, Probability, Problem Solving, Set Theory, Statistics, *Teaching Guides

This guide is organized around six concepts: sets, numbers and numeration; operations, their properties and number theory; relations and functions; geometry; measurement; and probability and statistics. Objectives and sample activities are presented for each concept. Separate sections deal with the processes of problem solving and computation. A section on updating curriculum includes discussion of continuing program improvement, evaluation of pupil progress, and utilization of media. (MP)

2620 ED 162 883
Beatty, Leslie And Others
Mathematics for the Elementary School, Grade 6, Teacher's Commentary, Part II, Unit 36. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—65
Note—435p.; For related documents, see SE 025 381-383; Contains occasional blurred print
Pub Type— Guides - General (050)
EDRS Price - MF01/PC18 Plus Postage.
Descriptors—Elementary Education, *Elementary School Mathematics, *Geometric Concepts, *Grade 6, *Instructional Materials, Mathematics Materials, *Number Concepts, Rational Numbers, Set Theory, *Teaching Guides
Identifiers—*School Mathematics Study Group, Volume

This book is part 2 of a 2-part manual for teachers using SMSG text materials for grade 6. The purpose for each of 5 chapters is stated and mathematical background for the teacher is presented. Detailed lesson plans are then provided, including sequences of statements and questions, activities, and exercise sets with answers. Needed materials and vocabulary are listed. Chapter topics include: (1) division of rational numbers, (2) volume; (3) organizing and describing data; (4) sets and circles; and (5) a review. (MN)

2621 ED 162 882
Beatty, Leslie And Others
Mathematics for the Elementary School, Grade 6, Teacher's Commentary, Part I, Unit 35. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—65
Note—518p.; For related documents, see SE 025 381-384; Contains occasional light and broken type
Pub Type— Guides - General (050)
EDRS Price - MF02/PC21 Plus Postage.
Descriptors—Elementary Education, *Elementary School Mathematics, *Geometric Concepts, *Grade 6, *Instructional Materials, Integers, Mathematics Materials, *Number Concepts, Rational Numbers, *Teaching Guides
Identifiers—*School Mathematics Study Group

This book is part I of a 2-part manual for teachers using SMSG text materials for grade 6. The purpose for each of 5 chapters is stated and mathematical background for the teacher is presented. Detailed lesson plans are then provided, including sequences of statements and questions, activities, and exercise sets with answers. Needed materials and vocabulary are listed. Chapter topics include: (1) exponents; (2) multiplication of rational numbers; (3) side and angle relationships of triangles; (4) integers; and (5) coordinates. (MN)

2622 ED 162 881
Beatty, Leslie And Others
Mathematics for the Elementary School, Grade 4, Teacher's Commentary, Part II, Unit No. 28. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—65
Note—445p.; For related documents, see SE 025 381-384; Contains occasional light and broken type
Pub Type— Guides - General (050)
EDRS Price - MF01/PC18 Plus Postage.
Descriptors—Elementary Education, *Elementary School Mathematics, *Geometric Concepts, *Grade 4, *Instructional Materials, Mathematics Materials, Measurement, *Number Concepts, Rational Numbers, *Teaching Guides
Identifiers—Number Operations, *School Mathematics Study Group

This book is part 2 of a 2-part manual for teachers using SMSG text materials for grade 4. The purpose for each of 5 chapters is stated and mathematical background for the teacher is presented. Detailed lesson plans are then provided, including sequences of statements and questions, activities, and exercise sets with answers. Needed materials and vocabulary are listed. Chapter topics include: (1) addition and subtraction; (2) multiplication and division; (3) common geometric figures; (4) linear measurement; and (5) rational numbers. (MN)

2623 ED 162 880
Beatty, Leslie And Others
Mathematics for the Elementary School, Grade 4, Teacher's Commentary, Part I, Unit No. 27. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—62
Note—501p.; For related documents, see SE 025 382-384; Contains light and broken type
Pub Type— Guides - General (050)
EDRS Price - MF02/PC21 Plus Postage.
Descriptors—Elementary Education, *Elementary School Mathematics, *Geometric Concepts, *Grade 4, *Instructional Materials, Mathematics Materials, *Number Concepts, Set Theory, *Teaching Guides
Identifiers—Number Operations, *School Mathematics Study Group

This book is part 1 of a 2-part manual for teachers using SMSG text materials for grade 4. The purpose for each of 5 chapters is stated and mathematical background for the teacher is presented. Detailed lesson plans are then provided, including sequences of statements and questions, activities, and exercise sets with answers. Needed materials and vocabulary are listed. Chapter topics include: (1) concept of sets; (2) numeration; (3) addition and subtraction; (4) multiplication and division; and (5) sets of points. (MN)

2624 ED 144 834
Beatty, Leslie And Others
Mathematics for the Elementary School, Grade 5. Teacher's Commentary, Part II, Unit No. 32. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—62
Note—482p.; For related documents, see SE 023 139-143
Pub Type— Guides - General (050)
EDRS Price - MF02/PC20 Plus Postage.
Descriptors—Curriculum Guides, Elementary Education, *Elementary School Mathematics, Grade 5, Instruction, *Instructional Materials, *Lesson Plans, Mathematics Education, *Number Concepts, *Teaching Guides
Identifiers—*School Mathematics Study Group

This guide for teachers using the SMSG text materials for grade 5 considers four chapters on addition and subtraction of rational numbers, measurement of angles, area, and ratio, plus a review of the fifth-grade program. The objectives or purposes for each unit are given, followed by mathematical background. Detailed lesson plans are then provided, including sequences of statements and questions, activities, and exercise sets with answers. (MS)

2625 ED 144 833
Beatty, Leslie And Others
Mathematics for the Elementary School, Grade 5. Teacher's Commentary, Part I, Unit No. 31. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—62
Note—463p.; For related documents, see SE 023 140-143
Pub Type— Guides - General (050)
EDRS Price - MF01/PC19 Plus Postage.
Descriptors—Curriculum Guides, Elementary Education, *Elementary School Mathematics, Grade 5, Instruction, *Instructional Materials, Lesson Plans, Mathematics Education, *Number Concepts, *Teaching Guides
Identifiers—*School Mathematics Study Group

In this guide for teachers using the SMSG text materials for grade 5, five chapters on numeration systems, factors and primes, multiplication and division, and congruency of geometric figures are considered. The purpose is stated for each unit and mathematical background for the teacher is presented. Teaching procedures are then detailed through specific activities, statements, questions, and anticipated responses. Exercise sets and answers are also included. (MS)

2626 ED 141 174
Rogers, Sandra
Laboratory Mathematics. Booklet 8 - Math Lab Activities.
Anderson County School District 2, Honea Path, S.C.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—77
Note—111p.; For related documents, see SE 022 692-698; Not available in hard copy due to marginal legibility of original document
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Activities, Educationally Disadvantaged, *Elementary School Mathematics, Elementary Secondary Education, Experiential Learning, *Fundamental Concepts, Individualized Instruction, *Instructional Materials, Laboratory Procedures, *Low Achievement, Mathematics Education, *Units of Study
Identifiers—Elementary Secondary Education Act Title III

This math lab activities booklet accompanies a teacher's management guide and a set of five booklets which comprise the basic curriculum for "Mathematics Laboratories for Disadvantaged Students," a nationally validated Title III ESEA project. The materials in this bulletin are designed to serve as the core of the laboratory curriculum. Over 150 activities that emphasize a variety of skills are included. (RH)

2627 ED 119 994
Mathematics Guide K-8.
Del Mod System, Dover, Del.; Seaford School District, Del.
Spons Agency—National Science Foundation, Washington, D.C.
Report No.—NSF-GW-6703
Pub Date—Jun 74
Note—143p.;
Available from—Mr. John F. Reiher, State Supervisor of Science and Environmental Education, Dept. of Public Instruction, John G. Townsend Building, Dover, Delaware 19901 (Free while supply lasts)
Pub Type— Guides - General (050)
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—Basic Skills, Curriculum, *Curriculum Guides, *Elementary School Mathematics, Elementary Secondary Education, *Geometric Concepts, Instruction, Learning Activities, Mathematics Education, *Number Concepts, Objectives, *Secondary School Mathematics, Teacher Developed Materials
Identifiers—*Del Mod System, National Science Foundation

This mathematics curriculum guide for grades K-8 was developed and evaluated by teachers in the Seaford School District, Delaware. It sets out concepts and skills to be mastered at each grade level. Suggested learning activities are described for each curricular objective identified. The curricular topics addressed include number concepts, operations, and relations; geometric concepts; money and time, pattern recognition, and measurement. (SD)

2628 ED 118 706
Mathematics: Activities That Work.
Virginia State Dept. of Education, Richmond. Div. of Elementary Education.
Pub Date—75
Note—57p.; For Reading Program in Series, see UD 015 747; For Supplemental Skill Development Program Handbook, see UD 015 749
Pub Type— Guides - General (050)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—*Diagnostic Teaching, Elementary Education, Failure, Grade 5, Grade 6, *Individualized Instruction, *Learning Activities, *Mathematical Concepts, Mathematical Enrichment, Mathematics Education, Mathematics Instruction, Mathematics Materials, Parent Participation, *Underachievement
Identifiers—Supplemental Skill Development Program, Virginia (Richmond)

This demonstration project provides intensive instruction in reading and mathematics to selected fifth graders in the 1974-75 year and for selected fifth and sixth graders in 1975-76 in order to raise the reading and mathematics performance of underachievers to a level commensurate with measured ability. The sharing of learning activities in mathematics, which teachers have found effective for underachievers, is the main purpose of this resource. The document supports the theory that a sound curriculum in mathematics for elementary schools is characterized by both mathematical content and an approach to teaching consistent with the best available knowledge of learning in children. Its main focus is on activities used in teaching children about operations on whole and fractional numbers. The learning activities included give instructional suggestions for each of the 35 minimal objectives specified for the program. The importance of the teacher's recognition of four types of errors is emphasized for eventual diagnosis and remediation of failure. Brief guidelines for both diagnosis and remediation are provided. Also offered are some suggested methods of motivating low-achieving pupils; namely, extrinsic and intrinsic motivators. The importance of record keeping in individualized instruction is also stressed and forms included here facilitate the individual monitoring of pupil progress. (Author/AM)

2629 ED 104 728
Conceptually Oriented Mathematics Program. [Intermediate-Upper Levels].
Columbia Public Schools, Mo.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—73
Note—537p.; Best Copy Available; Occasional Marginal Legibility. See SE 019 046 for Primary-Intermediate Levels
Pub Type— Guides - General (050)
EDRS Price - MF02/PC22 Plus Postage.
Descriptors—*Behavioral Objectives, *Curriculum Guides, Elementary Education, *Elementary School Mathematics, *Instructional Materials, *Lesson Plans, Mathematics Education, Teacher Developed Materials, Tests, Worksheets
Identifiers—Elementary Secondary Education Act Title III

This is a collection of the last 12 units (intermediate-upper levels) of materials designed for the Conceptually Oriented Mathematics Program (COMP). The program is intended to diagnose student difficulty, provide a prescriptive program of improvement, and meet individual needs through small-group instruction. Content has been organized into 11 broad concept areas: sets, numerals, order, addition, subtraction, multiplication, division, functions and graphs, geometry, measurement, and number sentences and phrases. These areas are then fitted into 25 vertical levels, each level having two or more steps. The material actually contained here is a collection of lesson outlines covering most concept areas at most levels. Each lesson has the following format: concept area, behavioral objective, mathematical ideas, vocabulary, activities, references, and worksheets. Teaching aids are also suggested. (LS)

2630 ED 104 727

Conceptually Oriented Mathematics Program. [Primary-Intermediate Levels].

Columbia Public Schools, Mo.

Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.

Pub Date—73

Note—621p.; Best Copy Available; Occasional Marginal Legibility. See SE 019 047 for Intermediate-Upper Levels

Pub Type— Guides - General (050)

EDRS Price - MF03/PC25 Plus Postage.

Descriptors—*Behavioral Objectives, *Curriculum Guides, Elementary Education, *Elementary School Mathematics, *Instructional Materials, *Lesson Plans, Mathematics Education, Teacher Developed Materials, Tests, Worksheets

Identifiers—Elementary Secondary Education Act Title III

This is a collection of the first 13 units (primary-intermediate levels) of materials designed for the Conceptually Oriented Mathematics Program (COMP). The program is intended to diagnose student difficulty, provide a prescriptive program of improvement, and meet individual needs through small-group instruction. Content has been organized into 11 broad concept areas: sets, numerals, order, addition, subtraction, multiplication, division, functions and graphs, geometry, measurement, and number sentences and phrases. These areas are then fitted into 25 vertical levels, each level having two or more steps. The material actually contained here is a collection of lesson outlines covering most concept areas at most levels. Each lesson has the following format: concept area, behavioral objective, mathematical ideas, vocabulary, activities, references, and worksheets. Teaching aids are also suggested. (LS)

2631 ED 094 995

Luce, Marjory Muckey, Roy

Mathematics for the Elementary School, Unit 17, Addition and Subtraction in Squareville.

Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—65

Note—65p.

Pub Type— Guides - General (050)

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—*Addition, Curriculum, *Elementary School Mathematics, Experiential Learning, Graphs, Instruction, *Instructional Materials, Number Concepts, *Subtraction, Symmetry, *Teaching Guides, Units of Study, Worksheets

Identifiers—MINNEMAST, *Minnesota Mathematics and Science Teaching Project

The Minnesota School Mathematics and Science Teaching (MINNEMAST) Project is characterized by its emphasis on the coordination of mathematics and science in the elementary school curriculum. Units are planned to provide children with activities in which they learn various concepts from both subject areas. Each subject is used to support and reinforce the other where appropriate, with common techniques and concepts being sought and exploited. Content is presented in story fashion. The stories serve to introduce concepts and lead to activities. Imbedded in the pictures that accompany the stories are examples of the concepts presented. This unit provides students with a graphic method of addition which is useful both as a checking device and as an advance in what the student did in Unit 16. Three different techniques of using graphs and linear functions for addition are presented. This approach integrates ideas of geometric symmetry and with number relationships under addition and subtraction. Worksheets and commentaries to the teacher are provided and additional activities are suggested. (JP)

2632 ED 094 993

Clark, Julia, Ed. Myers, Donald E., Ed.

Mathematics for the Elementary School, Unit 15, Addition and Linear Translations.

Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—65

Note—149p.

Pub Type— Guides - General (050)

EDRS Price - MF01/PC06 Plus Postage.

Descriptors—*Addition, Curriculum, *Elementary School Mathematics, Experiential Learning, *Geometric Concepts, Instruction, *Instructional Materials, Number Concepts, Subtraction, *Teaching Guides, Units of Study, Worksheets

Identifiers—MINNEMAST, *Minnesota Mathematics and Science Teaching Project, Modular Arithmetic

The Minnesota School Mathematics and Science Teaching (MINNEMAST) Project is characterized by its emphasis on the coordination of mathematics and science in the elementary school curriculum. Units are planned to provide children with activities in which they learn various concepts from both subject areas. Each subject is used to support and reinforce the other where appropriate, with common techniques and concepts being sought and exploited. Content is presented in story fashion. The stories serve to introduce concepts and lead to activities. Imbedded in the pictures that accompany the stories are examples of the concepts presented. This unit introduces the concept of a ray and uses it to develop addition and subtraction on a number line by directed segments. There are also exercises leading to the concept of place value and work with modular arithmetic. Geometric concepts are explored through examining scales on intersecting and parallel lines. Worksheets and commentaries to the teacher are provided and additional activities are suggested. (JP)

2633 ED 089 989

Mathematics Grades 4-6: A Teacher's Guide.

Buffalo Public Schools, N. Y. Div. of Curriculum Evaluation and Development.

Pub Date—68

Note—43p.

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—*Course Content, Curriculum, *Curriculum Guides, *Elementary School Mathematics, *Instruction, *Instructional Materials, Teaching Guides

This curriculum guide presents the outlines for course content in mathematics in grades 4-6. For each grade level general overviews are given of the goals and objectives of the course. A detailed explanation of the content outline includes suggestions as to method of presentation. The mathematical concepts are explained using a technically correct approach. This is intended primarily for the teacher, so that the foundations she builds with the pupils in an informal way are based on sound, accurate mathematical principles. (JP)

2634 ED 053 967

Mathematics Curriculum Guide for Grades 6,7,8.

Joliet Public Schools, Ill. School District 86.

Pub Date—71

Note—69p.

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—Algebra, *Curriculum, *Curriculum Guides, *Elementary School Mathematics, Geometry, Junior High Schools, *Mathematics, *Middle Schools, Number Concepts, Teaching Guides

This curriculum guide outlines the mathematical content which whould be presented in grades 6, 7, and 8 - the new middle school organization. It is the result of a study made by a committee of principals and teachers of the needs and characteristics of adolescents. The following are included for each of the content areas: (1) topics which may be studied, (2) skills, (3) concepts, (4) application, (5) suggestions for implementation, and (6) helpful material and references. The mathematical content is contained within the conventional junior high school curriculum: number concepts, sets, algebra, geometry, statistics and probability, and numerical trigonometry. Also included are the objectives and philosophy of the school system. (RS)

2635 ED 052 969

Gladstone, Blanche C. And Others

Mathematics, Grade 6, Scope and Sequence.

New York City Board of Education, Brooklyn, N.Y. Bureau of Curriculum Development.

Report No.—Curric-Bull-4

Pub Date—71

Note—30p.

Available from—New York City Board of Education, Publications Sales Office, 110 Livingston Street, Brooklyn, New York 11201 ($1.00)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Algebra, *Curriculum Guides, *Elementary School Mathematics, Geometry, *Grade 6, Graphs, Measurement, Set Theory, Statistics

Provided are the scope and sequence of mathematics topics for Grade 6 to be implemented by teachers and supervisors. The guide is presented in the form of 62 units, each being organized around *the themes of (1) sets, numbers, and numeration: (2)* operations; (3) geometry and measurement; and (4) algebraic concepts, graphs, probability, and statistics. The sequence is structured to provide a spiral or cyclic approach for presentation of the concepts and skills. (Author/JG)

2636 ED 044 303

Mathematics, Grade 4, Grade 5, Scope and Sequence.

New York City Board of Education, Brooklyn, N.Y. Bureau of Curriculum Development.

Pub Date—69

Note—53p.

Available from—Board of Education of the City of New York, Publications Sales Office, 110 Livingston St., Brooklyn, N.Y. 11201 ($1.50, Payable to the Auditor, Board of Education)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—*Curriculum Development, *Curriculum Guides, *Elementary School Mathematics, Grade 4, Grade 5, *Instructional Materials, Mathematics

Identifiers—New York, New York (New York)

Presented is the scope and sequence of mathematics for Grades 4 and 5. It is based on the program which is introduced in prekindergarten through Grade 3 and is designed to extend and strengthen the computational skills and mathematical understanding of children. The units described are organized around four main themes-sets, number, and numeration; operations; geometry and measurement; and algebraic concepts, graphs, probability, and statistics. (FL)

2637 ED 034 698

Mathematics Grade 5. Curriculum Bulletin, 1968-69 Series, No. 18.

New York City Board of Education, Brooklyn, N.Y. Bureau of Curriculum Development.

Pub Date—69

Note—576p.

Available from—New York City Board of Education, Publications Sales Office, 110 Livingston Street, Brooklyn, New York 11201 ($6.00)

EDRS Price - MF06 Plus Postage. PC Not Available from EDRS.

Descriptors—Arithmetic, *Curriculum Development, *Elementary School Mathematics, Geometry, Grade 5, *Guidelines, *Instruction, Mathematics, Modern Mathematics, Number Concepts

This curriculum bulletin is one of a planned series of bulletins designed to meet the needs of teachers and supervisors who are working to improve the achievement level of mathematics in the schools. The eighty sequential units of this bulletin are organized into 3 categories - (1) Sets, number and numeration, (2) Operations, and (3) Geometry and measurement. A "Note to Teacher" is included in several of the units to provide further clarification of mathematical concepts connected with the unit and/or to understand reasons for the developmental material. This bulletin is designed to provide articulation with Grade 4 mathematics and with the mathematics of Grades 6, 7, and 8. This publication is the last of a four year sequence in Intermediate School Mathematics based on their philosophy of what should and can be taught in Grades 5 through 8. (RP)

2638 ED 025 423

Mathematics, Grade 5 Part 1.

New York City Board of Education, Brooklyn, N.Y. Bureau of Curriculum Development.

Pub Date—66

Note—320p.

Available from—New York City Board of Education, Publications Sales Office, 110 Livingston Street, Brooklyn, New York 11201 ($2.00).

EDRS Price - MF02 Plus Postage. PC Not Available from EDRS.

Descriptors—Algebra, Course Content, *Curriculum, Curriculum Development, Curriculum Guides, *Elementary School Mathematics, Geometry, Grade 5, *Mathematical Concepts, *Mathematics, Number Concepts, *Teaching

Guides
Identifiers—New York, New York (New York)

This curriculum bulletin is one of a planned series of bulletins designed to meet the needs of teachers and supervisors who are working to improve the achievement level of mathematics. The material has been planned to help teachers meet the diverse mathematical needs of the children in fifth-grade classes. In addition to the emphasis that is always placed on arithmetic computational skills, this bulletin shows how to include other areas considered important, such as concepts, skills, and ideas from algebra and geometry. The 80 units of this bulletin are organized into three categories: sets, number, numeration; operations; and geometry and measurement. The units are sequentially planned and follow a spiral pattern. Objectives for each unit are stated. This is the first part of a two part bulletin for Grade 5. (RP)

2639 ED 023 600
Mathematics, Grade 5, Part 2.
New York City Board of Education, Brooklyn, N.Y.
Pub Date—66
Note—270p.
Available from—New York City Board of Education, Publications Sales Office, 110 Livingston Street, Brooklyn, New York 11201 ($2.00).
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Algebra, *Arithmetic, Course Content, *Curriculum, *Elementary School Mathematics, Fractions, Geometry, Grade 5, Instruction, Learning Activities, Mathematical Concepts, *Mathematics, Number Concepts, *Teaching Guides
Identifiers—New York, New York (New York)

This curriculum bulletin is designed to help teachers meet the diverse needs in mathematics of the children in fifth grade classes. In addition to the emphasis that is placed on arithmetic computational skills, the bulletin shows how to include other areas considered important, such as concepts, skills, and ideas from algebra and geometry. The 80 units of the bulletin are organized into the following categories: (a) sets, number, numeration; (b) operations; and (c) geometry and measurement. The units are sequentially planned and follow a spiral pattern. (RP)

VARIED TOPICS: 7-8

2700 ED 176 955

Experimental Units for Grades Seven and Eight.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—59

Note—297p.; Contains occasional light and broken type

Pub Type— Guides - Classroom - Learner (051)

EDRS Price - MF01/PC12 Plus Postage.

Descriptors—Curriculum, Decimal Fractions, Fractions, *Geometry, Grade 7, Grade 8, *Instruction, *Mathematical Applications, Mathematics Education, Measurement, *Number Concepts, Probability, Secondary Education, *Secondary School Mathematics, Statistics, *Textbooks

Identifiers—*School Mathematics Study Group

This is an experimental SMSG mathematics text for junior high school students. Key ideas emphasized are structure of arithmetic from an algebraic viewpoint, the real number system as a progressing development, and metric and non-metric relations in geometry. Chapter topics include why study mathematics, decimal and non-decimal numeration, the natural numbers and zero, factoring and primes, divisibility, unsigned rationals, non-metric geometry, measurement, informal geometry, approximation, the lever, statistics, chance, and finite mathematical systems. (MP)

2701 ED 176 953

Anderson, R. D. And Others

Mathematics for Junior High School, Volume II (Part 2).

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—60

Note—284p.; For related documents, see SE 027 920-923 and ED 130 875; Contains occasional light and broken type

Pub Type— Guides - Classroom - Learner (051)

EDRS Price - MF01/PC12 Plus Postage.

Descriptors—Curriculum, *Geometry, *Instruction, Mathematics Education, *Number Systems, *Probability, Secondary Education, *Secondary School Mathematics, *Textbooks

Identifiers—*School Mathematics Study Group

This is part two of a two-part SMSG mathematics text for junior high school students. Key ideas emphasized are structure of arithmetic from an algebraic viewpoint, the real number system as a progressing development, and metric and non-metric relations in geometry. Chapter topics include real numbers, similar triangles, variation, non-metric polyhedrons, volumes and surface areas, relative error, permutations and combinations, and probability. Slight revisions are contained in a later edition. (MP)

2702 ED 176 952

Anderson, R. D. And Others

Mathematics for Junior High School, Volume II (Part 1).

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—59

Note—155p.; For related documents, see SE 027 920-923 and ED 130 874; Contains occasional light and broken type

Pub Type— Guides - Classroom - Learner (051)

EDRS Price - MF01/PC07 Plus Postage.

Descriptors—*Congruence, Curriculum, *Geometry, *Instruction, Mathematical Applications, Mathematics Education, *Number Concepts, Percentage, Secondary Education, *Secondary School Mathematics, *Textbooks

Identifiers—*School Mathematics Study Group

This is part one of a two-part SMSG mathematics text for junior high school students. Key ideas emphasized are structure of arithmetic from an algebraic viewpoint, the real number system as a progressing development, and metric and non-metric relations in geometry. Chapter topics include number line and coordinates, equations, scientific notation, applications of percent, and congruence and the Pythagorean property. Slight revisions are contained in a later edition. (MP)

2703 ED 176 951

Anderson, R. D. And Others

Mathematics for Junior High School, Volume I (Part 2).

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—59

Note—299p.; For related documents, see SE 027 921-923 and ED 130 871; Contains occasional light and broken type

Pub Type— Guides - Classroom - Learner (051)

EDRS Price - MF01/PC12 Plus Postage.

Descriptors—Curriculum, *Fractions, *Geometry, *Instruction, Mathematical Applications, Mathematics Education, Secondary Education, *Secondary School Mathematics, *Statistics, *Textbooks

Identifiers—*School Mathematics Study Group

This is part two of a two-part SMSG mathematics text for junior high school students. Key ideas emphasized are structure of arithmetic from an algebraic viewpoint, the real number system as a progressing development, and metric and non-metric relations in geometry. Chapter topics include the rational number system; parallels, parallelograms, triangles, and right prisms; circles; statistics and graphs; mathematical systems; and mathematics at work in science. Slight revisions are contained in a later edition. (MP)

2704 ED 175 708

Bell, Max S. And Others

Secondary School Mathematics. Preliminary Version. Sample Chapters.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—69

Note—476p.; Not available in hard copy due to marginal legibility of original document

Pub Type— Guides - Classroom - Learner (051)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Curriculum, Flow Charts, *Geometry, *Instruction, *Mathematical Applications, Mathematics Education, Probability, Secondary Education, *Secondary School Mathematics, *Textbooks

Identifiers—*Functions (Mathematics), *School Mathematics Study Group

This volume contains preliminary versions of five of the chapters prepared by the SMSG curriculum project for use in grades 7 and 8. The first four chapters and the tenth chapter in the sequence are presented. The sample chapters in this volume illustrate a number of aspects of the curriculum project: (1) association of ideas of number and space through coordinate geometry; (2) early introduction of the function concept; (3) development of flow charts and algorithms as an introduction to the role and use of computers in modern society; (4) attention to the role of mathematical models for physical situations; and (5) introduction of concepts of probability. (MP)

2705 ED 173 137

Anderson, R. D. And Others

Mathematics for Junior High School. Commentary for Teachers. Volume II (Part 3). Preliminary Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—60

Note—76p.; For related documents, see SE 027 968-969 and ED 130 877; Contains occasional light and broken type

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC04 Plus Postage.

Descriptors—Curriculum, *Curriculum Guides, *Geometry, *Instruction, Junior High Schools, Mathematics Education, *Measurement, Secondary Education, *Secondary School Mathematics, *Solid Geometry

Identifiers—*School Mathematics Study Group

This is part three of a three-part manual for teachers using SMSG junior high school text materials. Each chapter contains an introduction and a collection of sample test questions. Each section contains a discussion related to the topic at hand and answers to all the exercises. Chapter topics include: (1) nonmetric geometry; (2) volumes and surface areas; (3) the sphere; and (4) relative error. (MP)

2706 ED 173 136

Anderson, .R. D. And Others

Mathematics for Junior High School. Commentary for Teachers. Volume II (Part 2). Preliminary Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—60

Note—124p.; For related documents, see SE 027 968-970 and ED 130 876; Pages 205-236 missing from document prior to being shipped to EDRS for filming; Contains occasional light and broken type; Best copy available

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC05 Plus Postage.

Descriptors—Congruence, Curriculum, *Curriculum Guides, *Geometry, *Instruction, Junior High Schools, Mathematics Education, *Number Concepts, *Probability, Secondary Education, *Secondary School Mathematics, Symmetry

Identifiers—*School Mathematics Study Group

This is part two of a three-part manual for teachers using SMSG junior high school text materials. Each chapter contains an introduction and a collection of sample test questions. Each section contains a discussion related to the topic at hand and answers to all the exercises. Chapter topics include: (1) symmetry, congruence, and the Pythagorean Property; (2) real numbers; (3) permutations and selections; (4) probability; and (5) similar triangles and variation. However, some pages from the third chapter and most of the fourth chapter are missing. (MP)

2707 ED 173 135

Anderson, R. D. And Others

Mathematics for Junior High School. Commentary for Teachers. Volume II (Part 1).

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—60

Note—152p.; For related documents, see SE 027 969-970 and ED 130 876; Contains occasional light and broken type

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC07 Plus Postage.

Descriptors—Curriculum, *Curriculum Guides, Decimal Fractions, Fractions, *Geometry, *Instruction, Junior High Schools, Mathematics Education, *Metric System, *Number Concepts, Secondary Education, *Secondary School Mathematics

Identifiers—*School Mathematics Study Group

This is part one of a three-part manual for teachers using SMSG junior high school text materials. Each chapter contains an introduction and a collection of sample text questions. Each section contains a discussion related to the topic at hand and answers to all the exercises. Chapter topics include: (1) rational numbers and coordinates; (2) equations; (3) scientific notation; (4) decimals, and the metric system; and (5) drawings and constructions. (MP)

2708 ED 173 134

Anderson, R. D. And Others

Mathematics for Junior High School. Supplementary Units. Commentary for Teachers.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—60

Note—62p.; For related documents, see SE 027 963-966 and ED 143 530; Contains occasional light and broken type

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—Curriculum, *Curriculum Guides, Decimal Fractions, *Geometry, *Instruction, Mathematics Education, Number Concepts, *Prime Numbers, Secondary Education, *Secondary School Mathematics, *Set Theory

Identifiers—*School Mathematics Study Group

This is a supplementary manual for teachers using SMSG junior high school text materials. A chapter-by-chapter commentary on the text is given as well as answers to all the exercises. Chapter topics include: (1) sets; (2) projective geometry; (3) repeating decimals; (4) tests for divisibility; (5) finite differences; and (6) prime numbers. (MP)

2709 ED 173 133
Anderson, R. D. And Others
Mathematics for Junior High School. Commentary for Teachers. Volume II (Part 2).
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—60
Note—145p.; For related documents, see SE 027 963-967 and ED 130 877; Contains occasional light and broken type
Pub Type— Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—Curriculum, *Curriculum Guides, *Geometry,, *Instruction, Junior High Schools, Mathematics Education, Measurement, *Number Concepts, *Probability, Secondary Education, *Secondary School Mathematics
Identifiers—*School Mathematics Study Group

This is part two of a two-part manual for teachers using SMSG junior high school text materials. A chapter-by-chapter commentary on the text is given as well as answers to all the exercises; a few chapters contain sample text questions. Chapter topics include: (1) real numbers; (2) similar triangles; (3) variation; (4) non-metric polyhedrons; (5) volumes and surface areas; (6) relative error; (7) permutations and combinations; and (8) probability. (MP)

2710 ED 173 132
Anderson, R. D., And Others
Mathematics for Junior High School. Commentary for Teachers. Volume II (Part 2).
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—59
Note—79p.; For related documents, see SE 027 963-967 and ED 130 876; Contains occasional light and broken type
Pub Type— Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—*Algebra, Congruence, Curriculum, *Curriculum Guides, *Instruction, Junior High Schools, Mathematical Applications, Mathematics Education, *Number Concepts, *Percentage, Secondary Education, *Secondary School Mathematics
Identifiers—*School Mathematics Study Group

This is part one of a two-part manual for teachers using SMSG junior high school text materials. A chapter-by-chapter commentary on the text is given as well as answers to all the exercises. Chapter topics include: (1) number line and coordinates; (2) equations; (3) scientific notation; (4) applications of percent; and (5) congruence and the Pythagorean Property. (MP)

2711 ED 173 131
Anderson, R. D. And Others
Mathematics for Junior High School. Commentary for Teachers. Volume I (Part 2).
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—59
Note—189p.; For related documents; see SE 027 963-967 and ED 130 873; Contains occasional light and broken type
Pub Type— Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC08 Plus Postage.
Descriptors—Curriculum, *Curriculum Guides, *Geometry, Graphs, *Instruction, Junior High Schools, Mathematical Applications, Mathematics Education, *Number Concepts, Secondary Education, *Secondary School Mathematics, *Statistics
Identifiers—*School Mathematics Study Group

This is part two of a two-part manual for teachers using SMSG junior high school text materials. For each chapter, a brief overview is given and sample test questions are listed; each section contains a discussion of the topic at hand and answers to all the exercises. Chapter topics include: (1) the rational number system; (2) parallels; (3) triangles; (4) parallelograms; (5) right prisms; (6) circles; (7) statistics and graphs; (8) mathematical systems; and (9) mathematics at work in science. (MP)

2712 ED 173 130
Anderson, R. D. And Others
Mathematics for Junior High School. Commentary for Teachers. Volume I (Part 1).
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—59
Note—284p.; For related documents, see SE 027 964-967 and ED 130 872; Contains occasional light and broken type
Pub Type— Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC12 Plus Postage.
Descriptors—Curriculum, *Curriculum Guides, Fractions, *Geometry, *Instruction, Junior High Schools, Mathematics Education, *Measurement, *Number Concepts, Prime Numbers, Secondary Education, *Secondary School Mathematics
Identifiers—*School Mathematics Study Group

This is part one of a two-part manual for teachers using SMSG junior high school text materials. For each chapter, a brief overview is given and sample test questions are listed. Each section contains a discussion of the topic at hand and answers to all the exercises. Chapter topics include: (1) what is mathematics; (2) numeration; (3) whole numbers; (4) non-metric geometry; (5) factoring and primes; (6) the rational number system; and (7) measurement. (MP)

2713 ED 173 112
Haag, V. H. And Others
Introduction to Secondary School Mathematics, Volume I (Part 3). Preliminary Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—60
Note—267p.; For related documents, see SE 027 917-918; Contains occasional light and broken type
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC11 Plus Postage.
Descriptors—Curriculum, *Geometry, Grade 7, Graphs, *Instruction, Mathematics Education, *Measurement, Secondary Education, *Secondary School Mathematics, Statistics, *Textbooks
Identifiers—*Area, *School Mathematics Study Group

This is part three of a three-part SMSG mathematics text for seventh-grade students. The text was written for those students whose mathematical talent is underdeveloped and is essentially the same subject matter presented in the SMSG text. Chapter topics include: (1) measurement; (2) area and volume; (3) parallels; (4) polygons and prisms; (5) circles; and (6) statistics and graphs. (MP)

2714 ED 173 111
Haag, V. H. And Others
Introduction to Secondary School Mathematics, Volume I (Part 2). Preliminary Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—60
Note—219p.; For related documents, see SE 027 917-919 and ED 159 077; Contains occasional light and broken type
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC09 Plus Postage.
Descriptors—Curriculum, *Decimal Fractions, *Fractions, *Geometry, Grade 7, *Instruction, Mathematics Education, Percentage, Ratios (Mathematics), Secondary Education, *Secondary School Mathematics, *Textbooks
Identifiers—*School Mathematics Study Group

This is part two of a three-part SMSG mathematics text for seventh-grade students. The text was written for those students whose mathematical talent is underdeveloped and is essentially the same subject matter presented in the SMSG text. Chapter topics include: (1) rational numbers and fractions; (2) non-metric geometry; (3) rational numbers and the number line; (4) decimals; and (5) ratio and percent. (MP)

2715 ED 173 110
Haag, V. H. And Others
Introduction to Secondary School Mathematics, Volume I (Part 1). Preliminary Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—60
Note—184p.; For related documents, see SE 027 918-919 and ED 159 076; Contains occasional light and broken type
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC08 Plus Postage.
Descriptors—Curriculum, *Geometry, Grade 7, *Instruction, Mathematics Education, *Number Concepts, Prime Numbers, Secondary Education, *Secondary School Mathematics, *Textbooks, *Whole Numbers
Identifiers—*School Mathematics Study Group

This is part one of a three-part SMSG mathematics text for seventh-grade students. The text was written for those students whose mathematical talent is underdeveloped and is essentially the same subject matter presented in the SMSG text. Chapter topics include: (1) what is mathematics; (2) number symbols; (3) whole numbers; (4) non-metric geometry; (5) factoring; and (6) primes. (MP)

2716 ED 171 558
ISS-Based Mathematics Program, Teachers Manual, Level 08, Curriculum. 1978 Edition.
Community School District 18, Brooklyn, N.Y.
Spons Agency—New York State Education Dept., Albany.; Office of Education (DHEW), Washington, D.C.
Pub Date—78
Note—177p.; For related document, see SE 027 741; Contains occasional light and broken type
Pub Type— Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC08 Plus Postage.
Descriptors—*Course Descriptions, Curriculum Development, Curriculum Enrichment, *Curriculum Guides, Grade 8, Guides, *Instructional Materials, *Mathematics Curriculum, Mathematics Education, *Objectives, Secondary Education, *Secondary School Mathematics, Teaching Guides
Identifiers—*Instructional Support System

This publication is the teachers' manual, level 8, of the Instructional Support Systems (ISS) Program, which was developed by the Community School District 18 of New York. It presents seven topics: (1) fractions; (2) decimals; (3) integers; (4) geometry; (5) measurement; (6) algebraic concepts; and (7) graphs, probability, and statistics. Each topic consists of several modules. Two types of modules (standard and advanced) and a suggested module sequence are presented to better meet the needs of all the students. The standard modules contain instructional objectives which introduce and develop new concepts and skills related to algebra and geometry. The advanced modules contain instructional objectives which offer mathematical enrichment. Activities are listed in the order of objectives to which they relate. Activities generally consist of examples and problems which lead to mastery of the specific objectives. Suggested durations for level eight modules one also included. (HM)

2717 ED 159 081
Haag, V. H. And Others
Introduction to Secondary School Mathematics, Volume 2, Teacher's Commentary, Unit 42. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—62
Note—309p.; For related documents, see SE 024 957-961
Pub Type— Guides - General (050)
EDRS Price - MF01/PC13 Plus Postage.
Descriptors—Algebra, Curriculum, Geometric Concepts, *Grade 8, *Instruction, Junior High Schools, Mathematics Education, Measurement, Number Concepts, Secondary Education, *Secondary School Mathematics, Statistics, *Teaching Guides
Identifiers—*School Mathematics Study Group

This is volume two of a two-volume manual for teachers using SMSG text materials for students in grades 7 and 8 whose mathematical talents are underdeveloped. The overall purpose for each of the chapters is described and the mathematical development detailed. Background information for key concepts, answers for all exercises in each chapter, and suggested test items are provided. Chapter topics include: linear measurement, area and volume, angles and parallels, polygons and prisms, circles, statistics and graphs, negative rational numbers, equations and inequalities, coordinates in the plane, real numbers, and scientific notation, decimals, and the metric system. (MN)

2718 ED 159 080
Haag, V. H. And Others
Introduction to Secondary School Mathematics, Volume 2, Student's Text, Part II, Unit 41. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—65
Note—186p.; For related documents, see SE 024 957-962; Contains occasional light and broken type
Pub Type— Books (010)
EDRS Price - MF01/PC08 Plus Postage.
Descriptors—Algebra, Analytic Geometry, Curriculum, Decimal Fractions, *Grade 8, Graphs, *Instructional Materials, Junior High Schools, Mathematics Education, Measurement, Metric System, Number Concepts, Secondary Education, *Secondary School Mathematics, Statistics, *Textbooks
Identifiers—*School Mathematics Study Group

This is part two of a two-part SMSG text for grade eight students whose mathematical talents are underdeveloped. The reading level of this text has been adjusted downward, chapters shortened, and additional concrete examples included. Nevertheless, the authors warn that the text may not be appropriate for the very slow non-college-bound student. Chapter topics include: negative rational numbers, equations and inequalities, coordinates in the plane, real numbers, and scientific notation, decimals, and the metric system. (MN)

2719 ED 159 079
Haag, V. H. And Others
Introduction to Secondary School Mathematics, Volume 2, Student's Text, Part I, Unit 40. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—65
Note—251p.; For related documents, see SE 024 957-962; Contains occasional light type
Pub Type— Books (010)
EDRS Price - MF01/PC11 Plus Postage.
Descriptors—Curriculum, Geometric Concepts, *Grade 8, *Instructional Materials, Junior High Schools, Mathematics Education, Measurement, Number Concepts, Secondary Education, *Secondary School Mathematics, Statistics, *Textbooks
Identifiers—*School Mathematics Study Group

This is part one of a two-part SMSG text for grade eight students whose mathematical talents are underdeveloped. The reading level of this text has been adjusted downward, chapters shortened, and additional concrete examples included. Nevertheless, the authors warn that the text may not be appropriate for the very slow non-college-bound student. Chapter topics include: linear measurement, area and volume, angles and parallels, polygons and prisms, circles, and statistics and graphs. (MN)

2720 ED 159 078
Haag, V. H. And Others
Introduction to Secondary School Mathematics, Volume 1, Teacher's Commentary, Unit 39. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—62
Note—288p.; For related documents, see SE 024 957-962
Pub Type— Guides - General (050)
EDRS Price - MF01/PC12 Plus Postage.
Descriptors—Curriculum, Geometric Concepts, *Grade 7, *Instruction, Junior High Schools, Mathematics Education, Number Concepts, Secondary Education, *Secondary School Mathematics, *Teaching Guides
Identifiers—*School Mathematics Study Group

This is volume one of a two-volume manual for teachers using SMSG text materials for students in grades 7 and 8 whose mathematical talents are underdeveloped. The overall purpose for each of the chapters is described and the mathematical development detailed. Background information for key concepts, answers for all exercises in each chapter, and suggested test items are provided. Chapter topics include: number symbols, whole numbers, non-metric geometry, factoring and primes, rational numbers and fractions, rational numbers and the number line, decimals, and ratio and percent. (MN)

2721 ED 159 077
Haag, V. H. And Others
Introduction to Secondary School Mathematics, Volume 1, Student's Text, Part II, Unit 38. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group
Spon[illegible]gency—National Science Foundation, W[illegible]ington, D.C.
[illegible]—65
[illegible]p.; For related documents, see SE 024 [illegible]962; Contains occasional light and broken type
Pub Type— Books (010)
EDRS Price - MF01/PC09 Plus Postage.
Descriptors—Curriculum, Geometric Concepts, *Grade 7, *Instructional Materials, Junior High Schools, Mathematics Education, Number Concepts, Ratios (Mathematics), Secondary Education, *Secondary School Mathematics, *Textbooks
Identifiers—*School Mathematics Study Group

This is part two of a two-part SMSG text for grade seven students whose mathematical talents are underdeveloped. The reading level of this text has been adjusted downward, chapters shortened, and additional concrete examples included. Nevertheless, the authors warn that the text may not be appropriate for the very slow non-college-bound student. Chapter topics include: rational numbers and fractions, non-metric geometry, rational numbers and the number line, decimals, and ratio and percent. (MN)

2722 ED 159 076
Haag, V. H. And Others
Introduction to Secondary School Mathematics, Volume 1, Student's Text, Part I, Unit 37. Revised Edition.
Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—62
Note—194p.; For related documents, see SE 024 958-962
Pub Type— Books (010)
EDRS Price - MF01/PC08 Plus Postage.
Descriptors—Curriculum, Geometric Concepts, *Grade 7, *Instructional Materials, Junior High Schools, Mathematics Education, Number Concepts, Secondary Education, *Secondary School Mathematics, *Textbooks
Identifiers—*School Mathematics Study Group

This is part one of a two-part SMSG text for grade seven students whose mathematical talents are underdeveloped. The reading level of this text has been adjusted downward, chapters shortened, and additional concrete examples included. Nevertheless, the authors warn that the text may not be appropriate for the very slow non-college-bound student. Chapter topics include: number symbols, whole numbers, non-metric geometry, and factoring and primes. (MN)

2723 ED 155 028
Mathematics for Junior High School, Pilot Edition, Second Course, Chapters 5 & 6.
Boston Univ., Mass.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—76
Grant—NSF-SED-74-18105
Note—58p.; For related documents, see SE 024 279-282
Pub Type— Books (010)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Activity Units, *Curriculum, Earth Science, *Instructional Materials, *Junior High Schools, *Mathematics Materials, Measurement, Problem Sets, *Secondary School Mathematics, *Textbooks
Identifiers—*Boston Unviersity Mathematics Project, Functions (Mathematics), Scientific Notation, Variables (Mathematics)

This book contains the fifth and sixth chapters of the second course of a pilot mathematics sequence for the seventh and eighth grades. The content of the sequence is to serve as a vehicle for the development of relevant computational skills, mathematical reasoning, and geometric perception in three dimensions and is to reflect the application of mathematics to the social and natural sciences. The material is divided into five types of sections: (1) activities; (2) short reading sections; (3) questions; (4) sections for the student with a weaker background; and (5) sections for the strongly motivated student. The material in the fifth and sixth chapters of the second course include: measurement, scientific notation, and variables and functions. (MN)

2724 ED 155 027
Mathematics for Junior High School, Pilot Edition, Second Course, Chapters 1-4.
Boston Univ., Mass.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—76
Grant—NSF-SED-74-18105
Note—110p.; For related documents, see SE 024 279-283
Pub Type— Books (010)
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—Activity Units, *Curriculum, Geometric Concepts, *Instructional Materials, *Junior High Schools, *Mathematics Materials, Number Concepts, Problem Sets, *Secondary School Mathematics, Solid Geometry, *Textbooks
Identifiers—*Boston University Mathematics Project, Exponents, Signed Numbers

This book contains the first four chapters of the second course of a pilot mathematics sequence for the seventh and eighth grades. The content of the sequence is to serve as a vehicle for the development of relevant computational skills, mathematical reasoning, and geometric perception in three dimensions and is to reflect the application of mathematics to the social and natural sciences. The material is divided into five types of sections: (1) activities; (2) short reading sections; (3) questions; (4) sections for the student with a weaker background; and (5) sections for the strongly motivated student. The material in the first four chapters of the second course includes: the cube, volume, powers of ten, and signed numbers. (MN)

2725 ED 155 026
Mathematics for Junior High School, Pilot Edition, Chapter 10.
Boston Univ., Mass
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—75
Grant—NSF-SED-74-18105
Note—26p.; For related documents, see SE 024 279-283
Pub Type— Books (010)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Activity Units, *Curriculum, Instructional Materials, *Junior High Schools, Mathematics Education, *Mathematics Materials, *Probability, Problem Sets, *Secondary School Mathematics, *Textbooks
Identifiers—*Boston University Mathematics Project, Estimation (Mathematics)

This book contains the tenth chapter of a pilot mathematics sequence for the seventh and eighth grades. The content of the sequence is to serve as a vehicle for the development of relevant computational skills, mathematical reasoning, and geometric perception in three dimensions and is to reflect the application of mathematics to the social and natural sciences. The material is divided into five types of sections: (1) activities; (2) short reading sections; (3) questions; (4) sections for the student with a weaker background; and (5) sections for the strongly motivated student. The material in chapter ten includes probable and improbable events. (MN)

2726 ED 155 025
Mathematics for Junior High School, Pilot Edition, Chapters 8 & 9.
Boston Univ., Mass.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—75
Grant—NSF-SED-74-18105
Note—34p.; For related documents, see SE 024 279-283

Pub Type— Books (010)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Activity Units, *Curriculum, *Instructional Materials, *Junior High Schools, *Mathematics Materials, Percentage, Problem Sets, Sampling, *Secondary School Mathematics, *Textbooks

Identifiers—*Boston University Mathematics Project, Indirect Measurement

This book contains the eighth and ninth chapters of a pilot mathematics sequence for the seventh and eighth grades. The content of the sequence is to serve as a vehicle for the development of relevant computational skills, mathematical reasoning, and geometric perception in three dimensions and is to reflect the application of mathematics to the social and natural sciences. The material is divided into five types of sections: (1) activities; (2) short reading sections; (3) questions; (4) sections for the student with a weaker background; and (5) sections for the strongly motivated student. The material in chapters eight and nine includes indirect measurements and sampling. (MN)

2727 ED 155 024

Mathematics for Junior High School, Pilot Edition, Chapters 1-7.

Boston Univ., Mass.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—75

Grant—NSF-SED-74-18105

Note—212p.; For related documents, see SE 024 280-283

Pub Type— Books (010)

EDRS Price - MF01/PC09 Plus Postage.

Descriptors—Activity Units, *Curriculum, Fractions, Geometric Concepts, *Instructional Materials, *Junior High Schools, Map Skills, *Mathematics Materials, Measurement, Number Concepts, Problem Sets, Ratios (Mathematics), *Secondary School Mathematics, *Textbooks, Whole Numbers

Identifiers—Angles, Area, *Boston University Mathematics Project

This book contains the first seven chapters of a pilot mathematics sequence for the seventh and eighth grades. The content of the sequence is to serve as a vehicle for the development of relevant computational skills, mathematical reasoning, and geometric perception in three dimensions and is to reflect the application of mathematics to the social and natural sciences. The material is divided into five types of sections: (1) activities by the whole class, small groups, or individuals; (2) short reading sections; (3) questions; (4) sections for the student with a weaker background; and (5) sections for the strongly motivated student. The material in the first seven chapters includes: simplified maps, length-whole numbers and fractions, angles and their measurement, enlarging and reducing, similar figures, reading maps, quotients and ratios, and area. (MN)

2728 ED 143 531

Anderson, R. D. And Others

Mathematics for Junior High School, Supplementary Units. Commentary for Teachers. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—60

Note—65p.; For related document, see SE 023 008; Contains occasional light and broken type

Pub Type— Guides - General (050)

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—*Algebra, *Geometry, Junior High School Students, *Mathematics, Mathematics Education, Number Concepts, Secondary Education, *Secondary School Mathematics, *Teaching Guides

Identifiers—*School Mathematics Study Group

This is the Teacher's Commentary for the Supplementary Units for Junior High School Students. Included in the Commentary are background material for teachers, suggestions for instruction, and answers to student exercises. Also included are comments on how to use the materials with different types of students and time needed for instruction. (RH)

2729 ED 143 530

Anderson, R. D. And Others

Mathematics for Junior High School, Supplementary Units. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—60

Note—122p.; For related document, see SE 023 009; Contains occasional light and broken type

Pub Type— Books (010)

EDRS Price - MF01/PC05 Plus Postage.

Descriptors—*Algebra, *Geometry, *Instructional Materials, Junior High School Students, Mathematics, Mathematics Education, Number Concepts, Secondary Education, *Secondary School Mathematics, *Textbooks

Identifiers—*School Mathematics Study Group

This document provides supplementary chapters for junior high school students studying SMSG or SMSG-type mathematics. Chapters include: (1) Sets; (2) Special Figures in Project Geometry; (3) Repeating Decimals and Tests for Divisibility; (4) Open and Closed Paths; (5) Finite Differences; (6) Recent Information on Primes; and (7) Games. Each chapter includes background information, discussion of the topic, and exercises. (RH)

2730 ED 141 115

Mathematics 7-8 Handbook, 1976 Reprint.

New York State Education Dept., Albany. Bureau of General Education Curriculum Development.

Pub Date—76

Note—210p.; For 1973 Edition, see ED 079 115; Contains occasional light type

Pub Type— Guides - General (050)

EDRS Price - MF01/PC09 Plus Postage.

Descriptors—Curriculum, *Curriculum Guides, Grade 7, Grade 8, *Instruction, *Learning Activities, Mathematical Enrichment, Mathematics Education, Secondary Education, *Secondary School Mathematics, *Teaching Guides

This handbook, prepared for teachers of grades 7 and 8, provides suggestions for teaching various aspects of the mathematics courses outlined in the syllabus of the New York State Education Department. The handbook deals with twelve units: sets, systems of numeration, natural numbers, whole numbers, positive rationals, integers, the complete set of rationals, reals, ratio and related topics, geometry, statistics, and probability. For each unit there is a review of important concepts, a brief discussion of student needs in the area, suggestions for learning activities, and descriptions of suggested enrichment activities. (SD)

2731 ED 130 877

Anderson, R. D. And Others

Mathematics for Junior High School, Volume 2, Teacher's Commentary, Part II. Unit 8.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—61

Note—198p.; For related Units 1-7, see SE 021 612-618

Pub Type— Guides - General (050)

EDRS Price - MF01/PC08 Plus Postage.

Descriptors—*Curriculum, Elementary Secondary Education, *Instruction, *Junior High Schools, Mathematics Education, *Secondary School Mathematics, *Teaching Guides

Identifiers—*School Mathematics Study Group

This eighth unit in the SMSG junior high mathematics series is the teacher's commentary for Unit 6. A time allotment for each of the chapters in Unit 6 is suggested. Then, for each of the chapters in Unit 6, the objectives for that chapter are specified, the mathematics is discussed, some teaching suggestions are provided, the answers to exercises are listed, and sample test questions for that chapter are suggested. (DT)

2732 ED 130 876

Anderson, R. D. And Others

Mathematics for Junior High School, Volume 2, Teacher's Commentary, Part I. Unit 7.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—61

Note—225p.: For related Units 1-8, see SE 021 612-619

Pub Type— Guides - General (050)

EDRS Price - MF01/PC09 Plus Postage.

Descriptors—*Curriculum, Elementary Secondary Education, *Instruction, *Junior High Schools, Mathematics Education, *Secondary School Mathematics, *Teaching Guides

Identifiers—*School Mathematics Study Group

This seventh unit in the SMSG junior high mathematics series is the teacher's commentary for Unit 5. A time allotment for each of the chapters in Unit 5 is suggested. Then, for each of the chapters in Unit 5, the objectives for that chapter are specified, the mathematics is discussed, some teaching suggestions are provided, the answers to exercises are listed, and sample test questions for that chapter are suggested. (DT)

2733 ED 130 875

Anderson, R. D. And Others

Mathematics for Junior High School, Volume 2, Student's Text, Part II. Unit 6.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—61

Note—323p.; For related Units 1-8, see SE 021 612-619; Contains occasional light and broken type

Pub Type— Books (010)

EDRS Price - MF01/PC13 Plus Postage.

Descriptors—*Curriculum, Elementary Secondary Education, Geometric Concepts, Instruction, *Instructional Materials, *Junior High Schools, Mathematics Education, Probability, *Secondary School Mathematics, *Textbooks

Identifiers—*School Mathematics Study Group

This sixth unit in the SMSG junior high mathematics series is a student text covering the following topics: permutations and selections; probability; similar triangles and variation; non-metric geometry; volumes and surface areas; the sphere; and unsolved problems in mathematics. (DT)

2734 ED 130 874

Anderson, R. D. And Others

Mathematics for Junior High School, Volume 2, Student's Text, Part I. Unit 5.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—61

Note—297p.; For related Units 1-8, see SE 021 612-619; Contains occasional light and broken type

Pub Type— Books (010)

EDRS Price - MF01/PC12 Plus Postage.

Descriptors—Algebra, *Curriculum, Elementary Secondary Education, Geometric Concepts, Instruction, *Instructional Materials, *Junior High Schools, Mathematics Education, Measurement, Metric System, Number Concepts, Number Systems, *Secondary School Mathematics, *Textbooks

Identifiers—*School Mathematics Study Group

This fifth unit in the SMSG junior high mathematics series is a student text covering the following topics: rational numbers and coordinates; equations; scientific notation, decimals, and the metric system; constructions, congruent triangles, and the Pythagorean property; relative error; and real numbers. (DT)

2735 ED 130 873

Anderson, R. D. And Others

Mathematics for Junior High School, Volume 1, Teacher's Commentary, Part II. Unit 4. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—65

Note—213p.; For related Units 1-8, see SE 021 612-619; Contains occasional light type

Pub Type— Guides - General (050)

EDRS Price - MF01/PC09 Plus Postage.

Descriptors—*Curriculum, Elementary Secondary Education, *Instruction, *Junior High Schools, Mathematics Education, *Secondary School Mathematics, *Teaching Guides

Identifiers—*School Mathematics Study Group

This fourth unit in the SMSG junior high mathematics series is the teacher's commentary for Unit 2. A time allotment for each of the chapters in Unit 2 is suggested. Then, for each of the chapters in Unit 2, the objectives for that chapter are specified, the mathematics is discussed, some teaching suggestions are provided, the answers to exercises are listed, and sample test questions for that chapter are suggested. (DT)

2736 ED 130 872

Anderson, R. D. And Others

Mathematics for Junior High School, Volume 1, Teacher's Commentary, Part I. Unit 3. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—65

Note—261p.; For related Units 1-8, see SE 021 612-619; Contains occasional light and broken type

Pub Type— Guides - General (050)

EDRS Price - MF01/PC11 Plus Postage.

Descriptors—*Curriculum, Elementary Secondary Education, *Instruction, *Junior High Schools, Mathematics Education, *Secondary School Mathematics, *Teaching Guides

Identifiers—*School Mathematics Study Group

This third unit in the SMSG junior high mathematics series is the teacher's commentary for Unit 1. A time allotment for each of the chapters in Unit 1 is suggested. Then, for each of the chapters in Unit 1, the objectives for that chapter are specified, the mathematics is discussed, some teaching suggestions are provided, the answers to exercises are listed, and sample test questions for that chapter are suggested. (DT)

2737 ED 130 871

Anderson, R. D. And Others

Mathematics for Junior High School, Volume 1, Student's Text, Part II. Unit 2.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—61

Note—293p.; For related Units 1-8, see SE 021 612-619; Contains occasional light and broken type

Pub Type— Books (010)

EDRS Price - MF01/PC12 Plus Postage.

Descriptors—*Curriculum, Elementary Secondary Education, Geometric Concepts, Instruction, *Instructional Materials, *Junior High Schools, Mathematical Applications, Mathematics Education, Ratios (Mathematics), *Secondary School Mathematics, Statistics, *Textbooks

Identifiers—Properties (Mathematics), *School Mathematics Study Group

The second unit in the SMSG series for junior high school mathematics is a student text covering the following topics: ratios, percents, and decimals; parallels, parallelograms, triangles, and right prisms; circles; mathematical systems; statistics and graphs; and mathematics in science. (DT)

2738 ED 130 870

Anderson, R. D. And Others

Mathematics for Junior High School, Volume 1, Student's Text, Part I. Unit 1.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—61

Note—361p.; For related Units 2-8, see SE 021 613-619; Contains occasional light and broken type

Pub Type— Books (010)

EDRS Price - MF01/PC15 Plus Postage.

Descriptors—*Curriculum, Elementary Secondary Education, Geometric Concepts, Instruction, *Instructional Materials, *Junior High Schools, Mathematics Education, Measurement, Number Concepts, Number Systems, *Secondary School Mathematics, *Textbooks

Identifiers—*School Mathematics Study Group

This first unit in the SMSG's junior high mathematics series is a student text covering the following topics: what is mathematics?; numeration; whole numbers; non-metric geometry; factoring and primes; the rational number system; measurement; and area, volume, weight, and time. (DT)

2739 ED 111 645

DeVenney, William S. And Others

Secondary School Mathematics Special Edition, Chapter 17. Solving Equations and Inequalities, Chapter 18. Coordinate Geometry, Student's Text.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—71

Note—165p.; For the accompanying teacher's commentary, see SE 019 482. Related documents are ED 046 766-769 and 779, and SE 019 487-489

Available from—A. C. Vroman, Inc., 2085 East Foothill Blvd., Pasadena, California 91109

Pub Type— Books (010)

EDRS Price - MF01/PC07 Plus Postage.

Descriptors—Curriculum, *Geometry, Graphs, *Inequalities, Instruction, Junior High Schools, *Low Achievement, Secondary Education, *Secondary School Mathematics, *Textbooks

Identifiers—*School Mathematics Study Group

This text is one of the sequence of textbooks produced for low achievers in the seventh and eighth grades by the School Mathematics Study Group (SMSG). There are eight texts in the sequence, of which this is the last. This set of volumes differs from the regular editions of SMSG junior high school texts in that very little reading is required. Concepts and processes are illustrated pictorially, and many exercises are included. This volume continues the study of equations begun in chapter 8, and develops methods for solving linear inequalities and quadratic equations. In the last chapter the slope-intercept form of a linear equation is discussed, and the method of solution of simultaneous linear equations is detailed. Equations of parallel and perpendicular pairs of lines are examined. The concepts of absolute value and distance are introduced, and the method of computing the distance between two points in a plane is described. (SD)

2740 ED 111 644

DeVenney, William S. And Others

Secondary School Mathematics Special Edition, Chapter 15. Measurement, Chapter 16. Real Numbers, Student's Text.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—71

Note—166p.; For the accompanying teacher's commentary, see SE 019 482. Related documents are ED 046 766-769 and 779, and SE 019 487-490

Available from—A. C. Vroman, Inc., 2085 East Foothill Blvd., Pasadena, California 91109

Pub Type— Books (010)

EDRS Price - MF01/PC07 Plus Postage.

Descriptors—Curriculum, Geometric Concepts, Instruction, Junior High Schools, *Low Achievement, *Measurement, Metric System, *Number Systems, Secondary Education, *Secondary School Mathematics, *Textbooks

Identifiers—*School Mathematics Study Group

This text is one of the sequence of textbooks produced for low achievers in the seventh and eighth grades by the School Mathematics Study Group (SMSG). There are eight texts in the sequence, of which this is the seventh. This set of volumes differs from the regular editions of SMSG junior high school texts in that very little reading is required. Concepts and processes are illustrated pictorially, and many exercises are included. Chapter 15, the first of two chapters in this volume, concerns measurement. The need for standard units is discussed and, after some work on computation with mixed numbers, both English and metric units are introduced. Measurement of angles using the protractor and computation of area are also discussed. In chapter 16 perfect squares are presented, and the idea of finding the sides of squares with given area is used to motivate an introduction to the real numbers. Computations with radicals, the Pythagorean theorem, and circumference and area of circles are also developed. (SD)

2741 ED 111 643

DeVenney, William S. And Others

Secondary School Mathematics Special Edition, Chapter 12. Similarity, Chapter 13. More About Rational Numbers, Chapter 14. Perpendiculars, Student's Text.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—71

Note—203p.; For the accompanying teacher's commentary, see SE 019 482. Related documents are ED 046 766-769 and 779, and SE 019 487-490

Available from—A. C. Vroman, Inc., 2085 East Foothill Blvd., Pasadena, California 91109

Pub Type— Books (010)

EDRS Price - MF01/PC09 Plus Postage.

Descriptors—Curriculum, *Geometric Concepts, Geometry, Graphs, Instruction, Junior High Schools, *Low Achievement, Number Concepts, Number Systems, *Rational Numbers, Secondary Education, *Secondary School Mathematics, *Textbooks

Identifiers—*School Mathematics Study Group

This text is one of the sequence of textbooks produced for low achievers in the seventh and eighth grades by the School Mathematics Study Group (SMSG). There are eight texts in the sequence, of which this is the sixth. This set of volumes differs from the regular editions of SMSG junior high school texts in that very little reading is required. Concepts and processes are illustrated pictorially, and many exercises are included. Similarity of triangles is the focus of the first chapter (12) in this volume. The use of ratios and scale factors is introduced, and the computation of percentages by construction of parallel lines on a grid is developed. In chapter 13 the emphasis is on computation with rational numbers in both common fraction and decimal forms. In this context exponents are introduced. Chapter 14 deals with motion geometry and perpendicularity. (SD)

2742 ED 111 642

DeVenney, William S. And Others

Secondary School Mathematics Special Edition, Chapter 10. Decimals, Chapter 11. Parallelism, Student's Text.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—71

Note—155p.; For the accompanying teacher's commentary, see SE 019 482. Related documents are ED 046 766-769 and 779, and SE 019 488-490

Available from—A. C. Vroman, Inc., 2085 East Foothill Blvd., Pasadena, California 91109

Pub Type— Books (010)

EDRS Price - MF01/PC07 Plus Postage.

Descriptors—Curriculum, *Decimal Fractions, *Geometric Concepts, Geometry, Instruction, Junior High Schools, *Low Achievement, Number Concepts, Secondary Education, *Secondary School Mathematics, *Textbooks

Identifiers—*School Mathematics Study Group

This text is one of the sequence of textbooks produced for low achievers in the seventh and eighth grades by the School Mathematics Study Group (SMSG). There are eight texts in the sequence, of which this is the fifth. This set of volumes differs from the regular editions of SMSG junior high school texts in that very little reading is required. Concepts and processes are illustrated pictorially, and many exercises are included. This volume deals with decimals (chapter 10) and parallelism (chapter 11). After a brief review of the fundamental operations on whole numbers, the place value system and use of decimal notation are discussed. The decimal point is introduced in the context of the monetary system, and exercises involving conversion from decimal to common fractions, and conversely, are presented. The chapter on parallelism begins with a review of congruence, and relies on constructions in developing the notions of perpendicularity and parallelism. This volume includes tables for addition and multiplication, and flow charts for operations on rationals to be used by students as needed. (SD)

2743 ED 111 641

DeVenney, William S. And Others

Secondary School Mathematics Special Edition, Teacher's Commentary, Chapters 10-18.

Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—71
Note—248p.; For the accompanying textbooks, see SE 019 487-490. Related documents are ED 046 766-769, and 779
Available from—A. C. Vroman, Inc., 2085 East Foothill Blvd., Pasadena, California 91109
Pub Type— Guides - General (050)
EDRS Price - MF01/PC10 Plus Postage.
Descriptors—Curriculum, *Geometric Concepts, Geometry, *Instruction, Junior High Schools, *Low Achievement, Measurement, Number Concepts, Number Systems, Secondary Education, *Secondary School Mathematics, *Teaching Guides, Textbooks
Identifiers—*School Mathematics Study Group

This manual was designed for use by teachers using the School Mathematics Study Group's (SMSG) special text series for low achievers in grades 7 and 8; it covers chapters 10 through 18 of that series. The manual begins with introductory material describing characteristics of low-achieving students and suggested instructional approaches. Testing policies, classroom routine, and necessary materials and supplies are also discussed. For each chapter of the text this volume lists and describes objectives, suggests special approaches where desirable, and provides solutions to all problems posed in the student text. (SD)

2744 ED 092 410

Sanders, Marguerite

Mathematics, Grade 8, De Soto Parish Curriculum Guide.

DeSoto Parish School Board, Mansfield, La.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—Aug 71
Note—214p.
Pub Type— Guides - General (050)
EDRS Price - MF01/PC09 Plus Postage.
Descriptors—*Algebra, *Curriculum Guides, Decimal Fractions, Geometric Concepts, *Grade 8, Instruction, Integers, Measurement, Number Concepts, Prime Numbers, Rational Numbers, Ratios (Mathematics), *Secondary School Mathematics, Teaching Guides, *Teaching Methods
Identifiers—Elementary Secondary Education Act Title III, *Geometric Constructions

This guide is designed to aid the teacher in planning and teaching an eighth-grade mathematics course which should strengthen the student's understanding of the basic structure of mathematics through experience with and appreciation of abstract concepts. Thirteen units outlined are entitled: Numeration Systems; Natural Numbers and Zero; Integers; Equations; Writing and Solving Equations; Factoring and Prime Numbers; Rational Numbers; Ratio-Proportion-Percent; Points, Lines and Planes; Measurement; Construction; Perimeter-Area-Volume; and Linear Metric Measure. Behavioral objectives are listed for each unit. Aims, suggested materials and methods, and teaching techniques are written for each lesson. (JP)

2745 ED 084 082

Introduction to Stretching Machines, Mathematics (Experimental): 5211.08.

Dade County Public Schools, Miami, Fla.
Pub Date—72
Note—24p.; An Authorized Course of Instruction for the Quinmester Program
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Behavioral Objectives, *Curriculum, Instruction, Low Achievement, Mathematics Education, *Number Concepts, *Objectives, *Secondary School Mathematics, *Teaching Guides
Identifiers—Equations (Mathematics), *Quinmester Program

Performance objectives are stated for this secondary school instructional unit concerned with introduction to the stretcher and shrinker approach, solution of simple equations, factoring composite numbers into primes, definition of prime numbers, and communication skills with computational concepts. The course of study is intended for students having competence in the basic computational skills with whole numbers. Comments are presented concerning teaching of the course. Included are a time schedule for instruction of stretching machines; an outline of the topics and objectives included in the course content; suggestions for administration of pre- and posttests; and lists of classroom supplies, teaching aids, and state-adopted and other texts for enrichment and practice purposes. (CC)

2746 ED 079 130

Strachan, Florence

Pre-Algebra 2, Mathematics (Experimental): 5210.12.

Dade County Public Schools, Miami, Fla.
Pub Date—71
Note—23p.; An Authorized Course of Instruction for the Quinmester Program
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Algebra, Behavioral Objectives, Curriculum, Instruction, Mathematics Education, *Number Concepts, *Objectives, *Secondary School Mathematics, *Teaching Guides, Tests
Identifiers—*Quinmester Program

This is the second of four guidebooks on minimum content designed to strengthen fundamental concepts which are basic preparation for Algebra I. This booklet covers integers, rational and irrational numbers, real number properties and operations, graphing in one dimension, and open sentences. The overall course goals are stated, then, for each topic covered, a list of performance objectives, a course outline, references to state-adopted texts, and suggested teaching strategies is provided. Pretest and posttest items, plus a list of eight references are included. For the first guidebook in this set, see ED 062 181. (DT)

2747 ED 079 115

Mathematics 7-8 Handbook, 1973 Reprint.

New York State Education Dept., Albany. Bureau of Secondary Curriculum Development.
Pub Date—69
Note—209p.
EDRS Price - MF01/PC09 Plus Postage.
Descriptors—*Curriculum, Curriculum Guides, Grade 7, Grade 8, *Instruction, Mathematical Enrichment, Mathematics Education, *Secondary School Mathematics, *Teaching Guides

This handbook provides suggestions for teaching topics in seventh and eighth grade mathematics and was intended to be used as a supplement to the seventh and eighth grade syllabus (see SE 016 446). Optimal materials, activities, and approaches are suggested for the following topics: sets; numeration systems; natural numbers, whole numbers, rational numbers, integers, and real numbers; ratio, proportion, percent, and variation; geometry; statistics; and probability. (DT)

2748 ED 079 114

Mathematics Courses for the Seventh Year and Eighth Year, 1973 Reprint.

New York State Education Dept., Albany. Bureau of Secondary Curriculum Development.
Pub Date—71
Note—34p.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Curriculum, *Curriculum Guides, Grade 7, Grade 8, Instruction, Mathematics Education, *Secondary School Mathematics, *Teaching Guides

Scope and content charts specifying units, topics, and time allotment are provided for grades 7 and 8. Sets, numeration systems, whole numbers and positive rational numbers, ratio-proportion-and-percent, and geometry are the units covered in seventh grade. In eighth grade, the units include sets, real numbers, ratio-proportion-and-percent, geometry, coordinate geometry, and statistics. The remainder of the guide briefly explains mathematical content and suggests teaching methods. See SE 016 447 for the handbook which supplements this syllabus. (DT)

2749 ED 067 293

Gordon, Marjorie S.

Math Structures 2, Mathematics: 5211.22.

Dade County Public Schools, Miami, Fla.
Pub Date—71
Note—25p.; An Authorized Course of Instruction for the Quinmester Program
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Behavioral Objectives, *Curriculum, *Grade 7, Instruction, Mathematics Education, *Objectives, *Secondary School Mathematics, *Teaching Guides, Tests
Identifiers—*Quinmester Program

This is one of two guidebooks designed for the highly motivated student in grade seven. Decimals, ratio and proportion, and percent are covered. Overall goals for the course are specified, then performance objectives, a unit outline, references, and teaching suggestions are given for each unit. A sample posttest and a list of references are included. (DT)

2750 ED 062 181

Blanford, Doris K. Thornton, James E., Jr.

Authorized Course of Instruction for the Quinmester Program. Mathematics: Pre-Algebra 1.

Dade County Public Schools, Miami, Fla.
Pub Date—71
Note—19p.
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—*Algebra, Curriculum, Instruction, Instructional Materials, Mathematics Education, *Objectives, *Secondary School Mathematics, *Teaching Guides, Units of Study
Identifiers—*Quinmester Program

The first of four "quins" designed to strengthen fundamental concepts and skills, this course covers properties of real numbers, simple open sentences, factorization of natural numbers, and problem solving. After a list of overall goals, the guide gives performance objectives, course outline, references to state-adopted textbooks, and suggested strategies for four units. Also included is a sample pretest, a sample posttest, and a student bibliography. (MM)

2751 ED 031 410

Mathematics 8th Year, Part 2. Curriculum Bulletin, 1967-68 Series, No. 18b.

New York City Board of Education, Brooklyn, N.Y. Bureau of Curriculum Development.
Pub Date—69
Note—177p.
Available from—New York City Board of Education, Publications Sales Office, 110 Livingston Street, Brooklyn, New York 11201 ($3.00).
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Arithmetic, *Curriculum Development, Discovery Processes, Grade 8, *Instructional Materials, Mathematical Concepts, Mathematics, Number Concepts, Problem Solving, *Secondary School Mathematics, *Teaching Guides
Identifiers—New York, New York (New York)

The contemporary mathematics program set forth in this publication developed as a result of experimentation and evaluation in classroom situations. This is Part 2 of "Mathematics: 8th Year." Part 1, a separate bulletin, was published during the school year 1967-68. The materials in this bulletin are intended to serve as guidelines for teachers in helping students to discover and understand properties of rational numbers, equations and inequalities, irrational numbers, graphs, surface area and volume, and statistics and probability. (RP)

2752 ED 025 422

Mathematics 7th Year, Part 1.

New York City Board of Education, Brooklyn, N.Y. Bureau of Curriculum Development.
Pub Date—66
Note—223p.
Available from—New York City Board of Education, Publications Sales Office, 110 Livingston Street, Brooklyn, New York 11201 ($2.50).
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Arithmetic, Course Content, *Curriculum, Curriculum Development, Geometry, Grade 7, *Mathematics, Number Concepts, *Secondary School Mathematics, *Teaching Guides
Identifiers—New York, New York (New York)

This curriculum bulletin is one of a planned series of bulletins designed to meet the needs of teachers and supervisors. The materials in this bulletin consist of a series of daily lesson plans for use by teachers in presenting a modern program of seventh year mathematics. In these lesson plans are developed the concepts, skills, and applications of "Mathematics Seventh Year." The material in this bulletin emphasizes (1) an understanding of mathematical structure, (2) growth of a number system, (3) relations and operations in a number system, (4) a development of mathematical skills based on an understanding of mathematical principles, and (5) concept of set in number and in geometry. The bulletin is organized into five chapters: Numbers and Numerals, Operations and Properties of Whole Numbers, Non-Metric Geometry, Factoring, and Rational Numbers (Multiplication and Division). (RP)

2753 ED 023 601
Mathematics, 7th year, Part 2.
New York City Board of Education, Brooklyn, N.Y.
Pub Date—67
Note—261p.
Available from—New York City Board of Education, Publications Sales Office, 110 Livingston Street, Brooklyn, New York 11201 ($3.00).
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Algebra, *Arithmetic, Course Content, *Curriculum, Geometry, Grade 7, Instruction, Learning Activities, Mathematical Concepts, *Mathematics, Number Concepts, *Secondary School Mathematics, *Teaching Guides
Identifiers—New York, New York (New York)

The materials in this bulletin consist of a series of daily lesson plans for use by teachers in presenting a modern program of seventh year mathematics. In these lesson plans are developed concepts, skills, and applications. There is an emphasis on (1) an understanding of mathematical structure, (2) growth of a number system, (3) relations and operations in a number system, (4) a development of mathematical skills based on an understanding of mathematical principles, and (5) concept of set in number and in geometry. This guide contains chapters on rational numbers (addition and subtraction), open sentences, decimals, measurement, per cent, graphs, and the set of integers. (RP)

2754 ED 023 599
Mathematics, 8th year, Part I.
New York City Board of Education, Brooklyn, N.Y. Bureau of Curriculum Development.
Pub Date—Jan 68
Note—159p.
Available from—New York City Board of Education, Publications Sales Office, 110 Livingston Street, Brooklyn, New York 11201 ($3.00).
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Algebra, *Arithmetic, Boards of Education, Course Content, Curriculum, Geometry, Grade 8, *Instruction, Mathematical Concepts, *Mathematics, Number Concepts, *Secondary School Mathematics, *Teaching Guides
Identifiers—New York, New York (New York)

The materials in this bulletin consist of a series of daily lesson plans for use by teachers in presenting a modern program of eighth year mathematics. There is an emphasis on (1) an understanding of mathematical structure, (2) growth of a number system, (3) relations and operations in a number system, (4) a development of mathematical skills based on an understanding of mathematical principles, and (5) concept of set in number and in geometry. Classroom materials are developed on such mathematical concepts as measurement, triangles and quadrilaterals, square and cubic measure, systems of numeration, and the set of integers. (RP)

2755 ED 021 728
Foley, Jack L.
Squares, Square Roots, Right Triangles.
Pub Date—Aug 67
Note—30p.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Arithmetic, *Elementary School Mathematics, Geometry, *Instructional Materials, Low Ability Students, *Mathematics
Identifiers—Elementary and Secondary Education Act Title III

This booklet, one of a series, has been developed for the project, A Program for Mathematically Underdeveloped Pupils. A project team, including inservice teachers, is being used to write and develop the materials for this program. The materials developed in this booklet include (1) elementary properties of the exponent, (2) properties of the right triangle, (3) squares and square roots, (4) the Pythagorean Theorem, (5) the acute and the obtuse triangle, (6) length of a diagonal of a rectangular solid, and (7) activities involving the determination of areas formed by the squares of sides of triangles. Accompanying these booklets will be a "Teaching Strategy Booklet" which will include a description of teacher techniques, methods, suggested sequences, academic games, and suggested visual materials. (RP)

2756 ED 020 892
FOLEY, JACK L.
METRIC GEOMETRY, CONCEPTS OF AREA MEASURE.
Pub Date—AUG67
Note—37P.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Arithmetic, *Elementary School Mathematics, Extracurricular Activities, Geometry, *Instructional Materials, Low Ability Students, *Mathematics, Measurement, Trigonometry
Identifiers—Elementary Secondary Education Act Title III

THIS BOOKLET, ONE OF A SERIES, HAS BEEN DEVELOPED FOR THE PROJECT, A PROGRAM FOR MATHEMATICALLY UNDERDEVELOPED PUPILS. A PROJECT TEAM, INCLUDING INSERVICE TEACHERS, IS BEING USED TO WRITE AND DEVELOP THE MATERIALS FOR THIS PROGRAM. THE MATERIALS DEVELOPED IN THIS BOOKLET INCLUDE SUCH CONCEPTS AS (1) VARIOUS UNITS OF MEASURE, (2) FINDING AREAS OF ELEMENTARY CONFIGURATIONS-PARALLELOGRAMS, TRIANGLES, AND TRAPEZOIDS-BY DECOMPOSITION, (3) AREA FORMULAS, AND (4) APPLICATIONS OF THE APPROPRIATE AREA FORMULA TO CIRCLES. ACCOMPANYING THESE BOOKLETS WILL BE A "TEACHING STRATEGY BOOKLET" WHICH WILL INCLUDE A DESCRIPTION OF TEACHER TECHNIQUES, METHODS, SUGGESTED SEQUENCES, ACADEMIC GAMES, AND SUGGESTED VISUAL MATERIALS. (RP)

2757 ED 020 886
FOLEY, JACK L.
PER CENT FRACTIONS.
Pub Date—NOV67
Note—38P.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Arithmetic, *Elementary School Mathematics, Extracurricular Activities, Fractions, *Instructional Materials, Low Ability Students, *Mathematics
Identifiers—Elementary Secondary Education Act Title III

THIS BOOKLET, ONE OF A SERIES, HAS BEEN DEVELOPED FOR THE PROJECT, A PROGRAM FOR MATHEMATICALLY UNDERDEVELOPED PUPILS. A PROJECT TEAM, INCLUDING INSERVICE TEACHERS, IS BEING USED TO WRITE AND DEVELOP THE MATERIALS FOR THIS PROGRAM. THE MATERIALS DEVELOPED IN THIS BOOKLET INCLUDE (1) BASIC IDEAS ABOUT THE VALUE OF MONEY, (2) REVIEW OF FRACTIONS, (3) BUDGETS, (4) EQUIVALENT FRACTIONS WITH DENOMINATORS OF 100, AND (5) PER CENT. ACCOMPANYING THESE BOOKLETS WILL BE A "TEACHING STRATEGY BOOKLET" WHICH WILL INCLUDE A DESCRIPTION OF TEACHER TECHNIQUES, METHODS, SUGGESTED SEQUENCES, ACADEMIC GAMES, AND SUGGESTED VISUAL MATERIALS. (RP)

2758 ED 016 612
BENNETT, LURA
A TRANSITIONAL CURRICULUM GUIDE FOR MATHEMATICS IN GRADES 7 AND 8.
New Mexico State Dept. of Education, Santa Fe.
Pub Date—66
Note—135P.
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—Arithmetic, Curriculum, *Curriculum Guides, *Geometry, Grade 7, Grade 8, *Mathematics, Measurement, *Secondary School Mathematics, Statistics, *Teaching Guides
Identifiers—NEW MEXICO

THIS TRANSITIONAL CURRICULUM GUIDE WAS DESIGNED TO SERVE THE FOLLOWING PURPOSES-(1) TO POINT OUT THE VARIOUS CONCEPTS, DEFINITIONS, MEANINGS, AND APPLICATIONS RELATED TO CERTAIN AREAS OF MATHEMATICS WHICH SHOULD BE THE CONTENT OF MATHEMATICS IN GRADES SEVEN AND EIGHT, (2) TO BRIDGE THE GAP BETWEEN TRANSITIONAL PROGRAMS AND MORE MODERNIZED COURSES, TO INCORPORATE MODERN TERMINOLOGY WITH THE TRADITIONAL TOPICS, AND TO INTRODUCE NEW CONCEPTS AS APPROPRIATE, AND (3) TO HELP TEACHERS BUILD AN ARITHMETIC BACKGROUND OF THEIR STUDENTS BY PRESENTING NEW IDEAS IN A WAY ACCEPTABLE TO ALL STUDENTS, BY MAINTAINING AND POLISHING COMPUTATIONAL SKILLS, BY INTRODUCING AND USING MODERN TERMINOLOGY AS NEEDED, AND BY DEVELOPING PATTERNS OF THOUGHT NECESSARY TO LATER WORK IN MATHEMATICS. SAMPLE INSTRUCTIONAL UNITS ON A NUMBER OF TOPICS HAVE BEEN INCLUDED. THESE UNITS ARE STRUCTURED TO SHOW HOW THE MATERIAL CAN BE ORGANIZED FOR EFFICIENT TEACHING AND TO PROVIDE SOME HELPFUL IDEAS ABOUT HOW TO PRESENT CERTAIN TOPICS. TOPICS PRESENTED IN THE GUIDE INCLUDE NUMBERS AND OPERATIONS, GEOMETRY, MEASUREMENT, BUSINESS ARITHMETIC, RATIOS, GRAPHS, SETS, MATHEMATICAL SENTENCES, AND STATISTICS. (RP)

2759 ED 069 503
Evans, Diane
Learning Activity Package, Pre-Algebra.
Ninety Six High School, S. C.
Pub Date—72
Note—134p.
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—Algebra, *Curriculum, *Individualized Instruction, *Instructional Materials, Mathematics Education, *Number Concepts, Number Systems, Objectives, *Secondary School Mathematics, Set Theory, Teacher Developed Materials, Teaching Guides, Units of Study

A set of ten teacher-prepared Learning Activity Packages (LAPs) for individualized instruction in topics in pre-algebra, the units cover the decimal numeration system; number theory; fractions and decimals; ratio, proportion, and percent; sets; properties of operations; rational numbers; real numbers; open expressions; and open rational expressions. Each unit contains a rationale for the material; a list of behavioral objectives for the unit; a list of resources including texts (specifying reading assignments and problem sets), tape recordings, and commercial games to be used; a problem set for student self-evaluation; suggestions for advanced study; and references. For other documents in this series, see SE 015 193, SE 015 195, SE 015 196, and SE 015 197. (DT)

VARIED TOPICS: K-8

2800 ED 180 763

McKay, Maureen Heffernan, Ed.

Mathematics Comprehensive Program Guide: K-8 and Algebra I.

Northern Valley Regional High School District, Closter, N.J.
Pub Date—79
Note—39p.; Not available in paper copy due to marginal legibility of original document
Pub Type— Guides - Classroom - Teacher (052) — Guides - Non-Classroom (055)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Academic Achievement, Algebra, *Curriculum Guides, *Educational Objectives, Elementary Secondary Education, Geometry, Graphs, *Mathematics Curriculum, *Mathematics Education, Measurement, Number Concepts, *Program Guides, Set Theory

This mathematics curriculum guide was developed in response to the need for an updated regional mathematics guide identifying common student performance expectations of the professional staff. The expectations, stated as instructional objectives, have been organized into two major components: (1) an overall "Mathematics Comprehensive Program Guide: K-8 and Algebra I," and (2) a separate "Mathematics Grade Level Guide" designed for each grade level K-8. Each of these two components organizes the objectives into six categories: numeration and numbers, operations, sets and set notation, geometry, measurement, and graphs. For each grade level, the two guide components indicate whether the objective is to be introduced, reinforced, mastered, or continued. Certain objectives are designated as optional. (Author/MK)

2801 ED 176 945

West Bloomfield School District Mathematics Curriculum Guide, K-12.

West Bloomfield Schools, Mich.
Pub Date—[79]
Note—155p.; Contains occasional light and broken type
Pub Type— Guides - Classroom - Teacher (052) — Guides - Non-Classroom (055)
EDRS Price - MF01/PC07 Plus Postage.
Descriptors—Algebra, Calculus, *Course Descriptions, *Curriculum, *Curriculum Guides, Elementary Secondary Education, Geometry, *Instruction, Mathematical Applications, *Mathematics Education, Measurement, Number Concepts, *Objectives, Problem Solving, Statistics, Trigonometry

This curriculum guide outlines the mathematics objectives of each of the grades K-8 under the headings of operations, sentences and problem solving, numbers and numeration, measurement, geometry, statistics, and applications. Examples of each of the objectives are given. High school minimal skills are listed. The sequence of mathematics courses for grades 9-12 is listed, along with a detailed description of each course. This description includes recommended prerequisites, usual grade level, rationale, description of students for which the course is planned, course evaluation, objectives, and topical outline. (MP)

2802 ED 171 545

Briggs, John W.

Idaho Curriculum Guide in Mathematics: Grades K-8. Revised Edition.

Idaho State Dept. of Education, Boise. Bureau of Educational Services.
Pub Date—79
Note—646p.; For related document, see ED 071 878; Not available in hard copy due to marginal legibility of original document
Pub Type— Guides - Classroom - Teacher (052)
EDRS Price - MF03 Plus Postage. PC Not Available from EDRS.
Descriptors—*Behavioral Objectives, Curriculum, *Curriculum Guides, Elementary Secondary Education, *Instruction, *Learning Activities, *Mathematics Education, *Teaching Methods
Identifiers—*Idaho

The contents of this guide have been organized under five major topics: (1) number and operations; (2) sets, functions, relations, systems, and logic; (3) geometry; (4) measurement and estimation; and (5) selected topics. A scope-and-sequence chart is given for each of the topics for grades K-8. Behavioral objectives, teaching aids, and suggestions are listed for each of the topics at every grade level from K-8. A list of 33 references on problem solving is included. (MP)

2803 ED 164 306

Beatty, Leslie And Others

Mathematics for the Elementary School, Book 3, Teacher's Commentary, Part II, Unit No. 59. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—65
Note—352p.; For related document, see SE 025 460
Pub Type— Books (010)
EDRS Price - MF01/PC15 Plus Postage.
Descriptors—Curriculum, Elementary Education, *Elementary School Mathematics, *Geometry, *Instructional Materials, Mathematics Education, *Number Concepts, *Textbooks
Identifiers—*School Mathematics Study Group

This is part two of a two-part SMSG mathematics text for elementary school students. One of the goals of the text is the development of mathematical ideas via appropriate experiences with things from the physical world and the immediate environment. The text materials provide an introduction to the study of mathematics in which growth is from the concrete to the abstract, from the specific to the general. The authors emphasize exploration and progressive refinement of ideas associated with both number and space. Chapter topics include: (1) addition and subtraction - shorter forms of computation; (2) length and area; (3) multiplication, quotients, and division; (4) rational numbers; and (5) division. (MP)

2804 ED 164 305

Beatty, Leslie And Others

Mathematics for the Elementary School, Book 3, Teacher's Commentary, Part I, Unit No. 58. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—65
Note—406p.; For related document, see SE 025 461; Contains occasional light and blurred print
Pub Type— Books (010)
EDRS Price - MF01/PC17 Plus Postage.
Descriptors—Curriculum, Elementary Education, *Elementary School Mathematics, *Geometry, *Instructional Materials, Mathematics Education, *Number Concepts, *Textbooks
Identifiers—*School Mathematics Study Group

This is part one of a two-part SMSG mathematics text for elementary school students. One of the goals of the text is the development of mathematical ideas via appropriate experiences with things from the physical world and the immediate environment. The text materials provide an introduction to the study of mathematics in which growth is from the concrete to the abstract, from the specific to the general. The authors emphasize exploration and progressive refinement of ideas associated with both number and space. Chapter topics include: (1) sets of points; (2) addition and subtraction - review and extension; (3) describing points as numbers; and (4) arrays and multiplication. (MP)

2805 ED 161 730

Ideas for Strengthening Mathematics Skills.

New York State Education Dept., Albany. Bureau of General Education Curriculum Development.; State Univ. of New York, Albany.
Pub Date—[78]
Note—42p.
Pub Type— Books (010)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Algorithms, Arithmetic, *Calculators, *Computation, Elementary Education, *Elementary School Mathematics, Games, Instruction, *Learning Activities, Remedial Mathematics, State Departments of Education, *Teaching Methods

An overview of some specific approaches which are valuable in strengthening mathematics skills is given. Chapter topics include: remediation, subtraction, money games, a visual sequence for teaching fractions, addition, multiplication, grid paper computation, mathematical reading skills, and the calculator in remedial mathematics. (MP)

2806 ED 159 057

District 147 Metric Education Program: Curriculum Behavioral Objectives, Scope and Sequence, K-8.

Harvey School District 147, Ill.
Spons Agency—Office of Education (DHEW), Washington, D.C.
Pub Date—Mar 78
Note—12p.; Not available in hard copy due to marginal legibility of original document
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Behavioral Objectives, Curriculum Development, *Curriculum Guides, *Elementary School Mathematics, Elementary Secondary Education, *Measurement, Measurement Objectives, *Metric System, Objectives, Secondary School Mathematics

Curriculum behavioral objectives for metric programs in grades K-8 are listed in this document. The objectives are organized according to topic and coded for grade level. The topics covered are: (1) language development; (2) comparison and ordering; (3) measurement/length; (4) measurement/volume; (5) measurement/man; (6) measurement/temperature; (7) estimates; (8) calculations; and (9) general information. (MP)

2807 ED 159 032

Blau, Sharon And Others

Metrics Made Easy: A Classroom Guide - 1978.

Fordham Univ., New York, N.Y.
Pub Date—78
Note—73p.
Available from—Elaine J. Schwartz, Fordham University at Lincoln Center, 113 West 60th Street, New York, New York 10023 ($2.00)
Pub Type— Guides - General (050)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Activity Units, Educational Games, Elementary Education, *Elementary School Mathematics, *Instructional Materials, Mathematics Materials, *Measurement, *Metric System, *Resource Materials, Resource Units

This classroom guide for metric education included a brief rationale and history of metrics, a preliminary metric quiz, a symbol summary, and a list of recommended instructional materials. The guide is comprised primarily of four sections covering the topics of: weight, length, volume, and temperature. Each of these sections contains goals and activities for early childhood and for upper grade students as well as activity worksheets. A section describing metric games for reinforcing symbols is also included. (MN)

2808 ED 143 550

Bell, Max S. And Others

Studies in Mathematics, Volume IX. A Brief Course in Mathematics for Elementary School Teachers. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—63
Note—465p.; For related documents, see SE 023 028-041-Contains occasional light type
Pub Type— Books (010)
EDRS Price - MF01/PC19 Plus Postage.
Descriptors—*Arithmetic, *Curriculum Guides, Elementary Education, *Elementary School Mathematics, Geometry, Mathematical Applications, Measurement, *Number Concepts, *Teaching Guides
Identifiers—*School Mathematics Study Group

The purpose of this text is to help elementary school teachers achieve balance in the teaching of mathematics. Children must acquire (1) computational skills, (2) conceptual ideas, and (3) knowledge of applications of mathematics. The text provides reading materials for the teacher as well as problems and exercises to help fix the ideas in mind. Problems in each chapter should be worked as they occur in the chapter. Exercises at the end of the chapters are designed to review and clinch ideas. Answers are found at the end of the book. A glossary of terms is provided for easy reference. Thirty chapters are included that consider various aspects of mathematics related to the K-6 curriculum. Emphasized are four strands: (1) Number Systems; (2) Geometry; (3) Measurement; and (4) Applications and Models. (RH)

2809 ED 141 167
Rogers, Sandra
Laboratory Mathematics. Booklet I - Teacher's Management Guide.
Anderson County School District 2, Honea Path, S.C.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—77
Note—58p.; For related documents, see SE 022 693-699; Not available in hard copy due to marginal legibility of original document
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Curriculum, Educationally Disadvantaged, *Elementary School Mathematics, Elementary Secondary Education, Experiential Learning, *Fundamental Concepts, Individualized Instruction, *Instruction, Laboratory Procedures, *Low Achievement, *Mathematics Education, *Teaching Guides
Identifiers—Elementary Secondary Education Act Title III

This teacher's management guide accompanies a set of five booklets which comprise the basic curriculum for "Mathematics Laboratories for Disadvantaged Students," a nationally validated Title III ESEA project. The project was planned for students who are below their expected achievement level in mathematics. Included in the management guide are the following sections: (1) The Math Laboratory Method; (2) Organization of the Lab; (3) Supervision of the Lab; (4) Curriculum Booklet Process; (5) Correlation Materials; (6) Planning Activities for the Lab; (7) Suggested Grading Methods for the Lab; (8) Materials Lists; and (9) Posttests for Curriculum Booklets. (RH)

2810 ED 137 103
Schoen, Harold L.
Individualized Mathematics Instruction: How Effective Has It Been in the Elementary School?
Pub Date—[76]
Note—27p.; For related documents, see SE 022 305-307; Not available in hard copy due to marginal legibility of original document
Pub Type-- Reference Materials - Bibliographies (131)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Curriculum, Elementary Education, *Elementary School Mathematics, *Individualized Instruction, Instruction, Mathematics Education, *Research Reviews (Publications)

Research studies which compare individualized elementary school mathematics instruction to other instructional approaches are summarized in this paper. First, brief descriptions are given of Individually Prescribed Instruction, Program for Learning in Accordance with Needs, and other self-paced approaches. Next, a general overview of the research studies is presented, covering research design, length of time of the studies, characteristics of the participating students, and criterion measures used. Finally, the results of the studies are reported for kindergarten to fourth grade, fifth to eighth grade, and educable mentally retarded students. (DT)

2811 ED 123 090
Lindvall, C. M. Light, Judy A.
A Specification of Steps to be Followed in the Design of Primary Grade Mathematics Lessons for Use in Individualized Instruction.
Pub Date—Apr 76
Note—22p.; Paper presented at the annual meeting of the American Educational Research Association (San Francisco, California, April 19-23, 1976)
Pub Type— Reports - Research (143)
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—*Curriculum Development, Elementary Education, *Elementary School Mathematics, *Individualized Instruction, Instruction, Instructional Design, *Instructional Materials, Lesson Plans, *Primary Education, Research, Task Analysis

After reviewing the basic principles of instructional design, the author outlines a seventeen-step procedure for the development of mathematics lessons for primary students The procedure consists of three basic components. The first is concerned with the definition of the unit, and steps in it concern the stating of objectives and analysis of tasks. The second component involves specifying the necessary steps in a lesson. Steps in this process begin with designing criterion items for the terminal objective and, working backwards, repeating this process for prerequisite skills until the skills defined should have been learned in a previous lesson. The third component provides for the sequential development of lesson exercises. The procedure has been used to advantage in the development of mathematics lessons for kindergarten and first-grade pupils in an individulized mathematics program. (SD)

2812 ED 119 951
A Teacher's Notebook: Mathematics, K-9.
National Association of Independent Schools, Boston, Mass.
Pub Date—Sep 75
Note—148p.
Available from—National Association of Independent Schools, 4 Liberty Square, Boston, Massachusetts 02109 ($3.00)
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Curriculum, Elementary School Mathematics, Elementary Secondary Education, Instruction, *Instructional Materials, Junior High Schools, *Mathematics Education, Mathematics Materials, *Resource Materials, Secondary School Mathematics, *Teaching Guides, *Worksheets

This guide is divided into seven sections according to specific topics rather than by grade levels and/or grade level expectations. The topics encompass a K-9 program and include: numeration; measurement; operations and computational skills; algebra; informal geometry; sets, logic, and proof; and mathematical patterns. Each section lists concepts and objectives, references to resources, and materials used. In most sections detailed examples and comments on concepts to be developed are given. The guide contains an annotated bibliography of books for teachers and/or children. (JBW)

2813 ED 113 191
Suggestions for Teaching Mathematics Using Laboratory Approaches Grades 1-6. 2. Operations. Experimental Edition.
New York State Education Dept., Albany. Bureau of Elementary Curriculum Development.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C. Div. of Compensatory Education.
Pub Date—[74]
Note—32p.; Related documents are SE 019 740-743
Pub Type— Guides - General (050)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Elementary Education, *Elementary School Mathematics, Fractions, Guides, Instructional Materials, Laboratory Manuals, *Manipulative Materials, Mathematics Materials, *Number Concepts, Teacher Developed Materials, *Teaching Guides, *Whole Numbers
Identifiers—Elementary Secondary Education Act Title I

This guide describes activities and materials which can be used in a mathematics laboratory approach for a basic mathematics program for grades 1-6..Twenty-nine activities relate to operations with whole numbers and twenty-five activities pertain to operations with fractions. These activities are described in terms of purpose, suggested grade levels, materials needed, and procedures. Some specific concepts presented are: place value, order of operations, equalities and inequalities, whole number operations, patterns, time measure, number facts, number sentences, ratio. applications, fractional parts and operations, geometric shapes, area, division problem solving, weighing, scale, linear measure, and equivalent fractions. The guide contains a categorical listing of materials such as improvised materials and games, commercial materials and games, general supplies, and other manipulative materials. (JBW)

2815 ED 104 720
Higgins, Jon L. Sachs, Larry A.
Mathematics Laboratories: 150 Activities and Games for Elementary Schools.
ERIC Information Analysis Center for Science, Mathematics, and Environmental Education, Columbus, Ohio.
Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Pub Date—Dec 74
Note—207p.
Available from—Ohio State University, Center for Science and Mathematics Education, 244 Arps Hall, Columbus, OH 43210 ($3.50)
Pub Type— Guides - General (050)
EDRS Price - MF01/PC09 Plus Postage.
Descriptors—Basic Skills, Elementary Education, *Elementary School Mathematics, *Experiential Learning, Games, Geometric Concepts, *Instruction, Instructional Materials, *Laboratories, *Manipulative Materials, Measurement, Number Concepts

This volume presents a collection of activities and games for use in elementary school mathematics laboratories. The activities and games included were submitted by classroom teachers and were selected for their use of manipulative materials or their reliance on student interactions. Several of the activities included have been described in "The Arithmetic Teacher," but many are first published in this volume. Activities described are in eight subject matter categories: (1) number concepts, (2) addition and subtraction, (3) multiplication and division, (4) number skills review, (5) measurement, (6) fractions, (7) graphs and functions, and (8) geometric concepts. The goals of activities range from increasing speed and power in computational situations to concept learning, development of strategies, and discovery. Each activity description is in outline form and includes statements of goals and purposes materials needed, procedures involved, and activity source. Many descriptions include diagrams and instructions for making any necessary materials. (SD)

2816 ED 091 221
Mathematics, Scope and Sequence, Grades 1-4.
Iberville Parish Schools, Plaquemine, La.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.; Louisiana State Dept. of Education, Baton Rouge.
Pub Date—[74]
Note—107p.
Pub Type-- Guides - General (050)
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—Curriculum, *Curriculum Guides, *Elementary School Mathematics, *Geometric Concepts, Mathematical Concepts, Measurement, *Number Concepts, *Objectives, Problem Solving, Set Theory
Identifiers—Elementary Secondary Education Act Title III, Number Operations

This guide for a mathematics curriculum for grades 1-4 presents topics in sequential order for the entire four-year program. Grade level was not used for separating units; instead, an integrated sequencing of concepts was used in preparing this guide. The relationship between units is specified for the teacher as an explicit mapping of how a particular concept is developed throughout the program. Number concepts, numeration, geometrical concepts, measurement concepts, and operations with whole numbers and fractions are presented in 43 units. Each unit contains a description of the concepts and mathematical activities with which the students are to be presented. Specific performance objectives are also listed. (JP)

2817 ED 187 633
Goffman, Erving
Gender Advertisements.
Harper and Row, Publishers, Inc., New York, N.Y.
Pub Date—79
Note—84p.
Available from—Harper & Row, Publishers, Inc., 10 East 53rd Street, New York, NY 10022 ($4.95)
Pub Type— Books (010) — Non-Print Media (100)
Document Not Available from EDRS.
Descriptors—*Advertising, *Females, *Males, *Sex Role, *Sex Stereotypes, *Social Attitudes, Social Behavior, Social Structure, Social Values

A heavily illustrated discussion of the ways in which men and women are portrayed in advertisements is presented. The three essays which precede the 56 pages of illustrations discuss gender expressions, characteristics of public and private pictures, and gender commercials. The author notes that advertisements do not depict how men and women actually behave; rather, they serve the social purpose of convincing us that this is how women and men are, want to be, or should be. Such an orientation accomplishes the task a society has of maintaining order. The accompanying pictures illustrate that: (1) a woman is taller than a man only when the man is her social inferior; (2) a woman's hands are seen just barely touching or caressing–never grasping or manipulating; (3) when a photograph illustrates instruction, the man is always instructing the woman; (4) when an advertisement requires some-one to sit or lie on a bed, the person is almost always a woman or child; and (5) women are repeatedly shown mentally drifting from the scene while in close physical touch with a man. Also, the author makes a connection between the image of women and the behavior of children. Women are often posed acting and looking like children. Finally, the author points out that whatever a man is wearing in an advertisement, he wears seriously, whereas whatever woman is wearing appears as a costume. When we see a woman wearing formal or informal, business or sports clothes, we feel that we are watching a model play-acting. (Author/KC)

2818 ED 087 632
Mathematics Curriculum Guide, Grades K-6, Volume 1.
Los Alamos Public Schools, N. Mex.
Pub Date—[74]
Note—302p.; This document contains 151 leaves, all of which are 11 inches wide by 8 1/2 inches and require two microfiche frames
EDRS Price - MF01/PC13 Plus Postage.
Descriptors—Addition, *Behavioral Objectives, Curriculum, *Curriculum Guides, Division, *Elementary School Mathematics, Experiential Learning, Games, Instruction, *Instructional Materials, Multiplication, *Number Concepts, Number Systems, Subtraction

This curriculum guide for grades K-6 is the first volume of a two-part series. It is meant to provide an ordered sequence of mathematical concepts from which teachers may organize an arithmetic program allowing for individual student progress with the greatest amount of individual attention. Each topic is arranged into levels based on the topic's content and not necessarily by grade level. Each level contains the following general categories: Concepts, Behavioral Objectives, References and Resources. The objectives are matched with textbooks referenced by pages and with specific resource materials to be used in the instruction. A list of activities that may be used for instruction is also provided at the end of each level. Topics covered include numeration, place value, addition, subtraction, multiplication, division and inequalities. Also provided is a list of 54 classroom games that are directly related to the topics included in this guide. For Volume II, see SE 017 305. (JP)

2819 ED 077 771
Staff Utilization for Continuous Progress Education. Math. . . Pretests and Posttests for Third and Fourth Grades.
Scottsdale Public Schools, Phoenix, Ariz.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—73
Note—444p.
EDRS Price - MF01/PC18 Plus Postage.
Descriptors—Curriculum, *Elementary School Mathematics, *Evaluation, Grade 3, Grade 4, *Instructional Materials, Mathematics Education, Number Concepts, *Tests
Identifiers—Elementary Secondary Education Act Title III, *Number Operations

This document is a collection of mathematics pretests and posttests for grades 3 and 4 on the topics of sets, place value, addition-subtraction, multiplication, division, multiplication-division, and fractions. Two forms for each test are provided plus answer keys. This work was prepared under an ESEA Title III contract. (DT)

2820 ED 077 769
Staff Utilization for Continuous Progress Education. Math. . . A K-8 Scope and Sequence.
Scottsdale Public Schools, Phoenix, Ariz.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—73
Note—166p.
EDRS Price - MF01/PC07 Plus Postage.
Descriptors—*Curriculum, Curriculum Development, *Curriculum Guides, Elementary School Mathematics, Geometric Concepts, *Instruction, Instructional Materials, Mathematics Education, Measurement, Number Concepts, Units of Study
Identifiers—Elementary Secondary Education Act Title III

An outline is presented for the scope and sequence of the following topics to be covered in grades K-8: sets, operations, number theory, measurement, geometry, and number sentences. Details of a coding scheme for mathematics units, exemplary units for each level, and a description of the procedures used to correlate science and mathematics courses are included in this document. This work was prepared under an ESEA Title III contract. (DT)

2821 ED 075 234
Elementary Mathematics: A Handbook for Teachers.
Alaska State Dept. of Education, Juneau. Office of Public Information and Publications.
Pub Date—Aug 71
Note—33p.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Curriculum, *Curriculum Guides, *Elementary School Mathematics, *Individualized Instruction, *Instruction, Instructional Materials, Laboratory Procedures, Mathematics Education

The aim of this guide is to aid elementary teachers in individualizing instruction. Eight general objectives of teaching mathematics are listed, 11 topics are identified as being the scope of elementary mathematics, a one-page mathematics curriculum flow chart for grades K-8 is provided, student and teacher needs and evaluation are discussed in general terms, and three examples of individualized instruction are given. A section on mathematics laboratories includes directions for four activities along with a short list of math lab materials and books. A bibliography of 32 references on mathematics education is given. (DT)

2822 ED 067 257
Improving Reading-Study Skills in Mathematics K-6.
New York State Education Dept., Albany. Bureau of Elementary Curriculum Development.
Pub Date—72
Note—32p.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Concept Formation, *Elementary School Mathematics, *Independent Study, *Instruction, Instructional Materials, Mathematical Vocabulary, Mathematics, *Reading Skills, *Study Habits, Symbols (Mathematics)

Presented is the basis for an integrated approach to teaching reading skills and mathematics concepts at the elementary school level. A general explanation of concept formation, of oral and written language, and of mathematics symbols, with specific suggestions as to their application in mathematics, is included in the first section of the pamphlet. The second section deals with the specialized skills needed for reading and thinking in mathematics. These skills include decoding words and math symbols, understanding the processes of mathematics, and applying the decoding and comprehension skills to problem solving. A list of eight suggestions and two references are given to help the teacher and students in developing their mathematics vocabulary. Reading comprehension skills are detailed, with activities specified for helping students with story problems, graphs, and charts. The final section deals with the role of the teacher as one of management and includes a discussion of objectives, evaluation, diagnosis, and organization of materials and experiences. (DT)

2823 ED 067 238
Mathematics K-6: A Recommended Program.
New York State Education Dept., Albany. Bureau of Elementary Curriculum Development.
Pub Date—May 72
Note—51p.
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Arithmetic, *Curriculum, *Curriculum Guides, *Elementary School Mathematics, Geometry, Instructional Materials, *Objectives
Identifiers—New York

Proposed curriculum topics for elementary school mathematics have been ar[illegible]n topic form. Six areas are covered: numb[illegible]umeration, sets, whole numbers, fractio[illegible]m solving, and geometry and measurement. [illegible]t section briefly explains the six areas and also [illegible]des a short discussion of teaching strategies, number sentences, problem solving, and developmental algorisms. The second section presents details of a curriculum for each of the six areas in kindergarten through grade six. (DT)

2824 ED 054 093
Graham, Carolyn And Others
Mathematics Curriculum Guide, K-6.
Clark County School District, Las Vegas, Nev.
Pub Date—[67]
Note—136p.
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—*Curriculum Guides, *Elementary School Curriculum, *Elementary School Mathematics, *Geometry, Grade 1, Grade 2, Grade 3, Grade 4, Grade 5, Grade 6, Kindergarten, *Mathematics Curriculum

GRADES OR AGES: K-6. SUBJECT MATTER: Mathematics. ORGANIZATION AND PHYSICAL APPEARANCE: The introductory material describes the philosophy behind the guide, its purpose, and the way it should be used, and also contains a set of graphs which provide a quick overview of the scope and sequence. The main body of the guide is arranged by grade level in five color-coded sections: 1) number, 2) numeration, 3) operations, 4) geometry, and 5) measurement. Each page is arranged in three columns: content, behavioral objectives, and textbook page coding. The guide is lithographed and spiral bound with a soft cover. OBJECTIVES AND ACTIVITIES: Both are detailed in the behavioral objectives column of the guide. INSTRUCTIONAL MATERIALS: No instructional materials other than the textbooks are listed. STUDENT ASSESSMENT: No specific provisions are made for evaluation. (MBM)

2825 ED 052 057
Flint, Deloris
Supplement to District Math Guide 1970-71.
Fountain Valley School District, Calif.
Report No.—Curr-Bull-Math-17
Pub Date—71
Note—52p.
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—*Audiovisual Aids, Catalogs, Educational Media, *Elementary School Mathematics, *Instructional Materials, *Manipulative Materials, Mathematics Education, *Teaching Guides

This teachers' guide lists manipulative aids, audiovisual materials, and demonstration materials for use in the elementary school mathematics classroom. Organization of the guide follows that of the California Strands Report (1967-68), as represented by these nine strands of mathematical content: numbers and numerals, geometry, measurements, applications, statistics and probability, sets, functions and graphs, logic, and problem solving. Catalog numbers and addresses of suppliers for all equipment are included. (RS)

2826 ED 051 200
Elementary Mathematics Guide, K-7.
Virginia State Dept. of Education, Richmond.
Pub Date—68
Note—189p.
EDRS Price - MF01/PC08 Plus Postage.
Descriptors—*Curriculum Guides, *Elementary School Curriculum, *Elementary School Mathematics, Grade 1, Grade 2, Grade 3, Grade 4, Grade 5, Grade 6, Grade 7, Kindergarten, *Mathematics

GRADES OR AGES: Grades K-7. SUBJECT MATTER: Mathematics. ORGANIZATION AND PHYSICAL APPEARANCE: The main section of the guide entitled "Mathematical Strands with Teaching Suggestions" has the following subsections: 1) sets and numbers, 2) numeration, 3) operations on whole numbers, 4) rational numbers, 5) geometry, and 6) measurement. Other chapters deal with problem solving and program objectives. The guide is printed and edition bound with a soft cover. OBJECTIVES AND ACTIVITIES: Objectives are listed for each grade under the six subsection headings. Activities are described in detail in the main section of the guide. INSTRUCTIONAL MATERIALS: None are listed. STUDENT ASSESSMENT: No special provision is made for evaluation. (MBM)

2827 ED 050 070
Wyoming Mathematics Curriculum Guide, Grades K-6.
Wyoming State Dept. of Education, Cheyenne.
Pub Date—69
Note—80p.
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—Behavioral Objectives, *Curriculum Guides, *Elementary School Mathematics, Grade 1, Grade 2, Grade 3, Grade 4, Grade 5, Grade 6, Kindergarten, *Mathematical Concepts, *Mathematics Curriculum, *Mathematics Materials

GRADES OR AGES: K-6. SUBJECT MATTER: Mathematics. ORGANIZATION AND PHYSICAL APPEARANCE: There are three chapters: 1) Scope and Sequence–the spiral approach to learning, using the scope and sequence, scope and sequence charts, and glossary for teachers; 2) objectives in Mathematics–behavioral objectives for elementary mathematics and evaluation in elementary mathematics; 3) Resources for Teachers. The scope and sequence charts are on gatefolds. The guide is printed and spiral bound with a soft cover. OBJECTIVES AND ACTIVITIES: The general objectives are set out, followed by sample behavioral objectives for each grade. The scope and sequence charts suggest activities for each grade but do not attempt to provide a detailed lesson plan. INSTRUCTIONAL MATERIALS: Chapter 3 contains extensive information on materials, under the headings: concrete materials for use with children, books for primary children, books for intermediate children, films, filmstrips, manipulative devices, programed instruction materials, teacher's resource materials, teaching tapes, and transparencies. STUDENT ASSESSMENT: Chapter 2 includes a section on three types of evaluation and lists the questions to be considered in the process. (MBM)

2828 ED 050 055
Starr, John W., 3rd., Ed.
Mathematics in the Elementary School.
Gary City Public School System, Ind.
Pub Date—67
Note—160p.
EDRS Price - MF01/PC07 Plus Postage.
Descriptors—*Curriculum Guides, *Elementary School Curriculum, *Elementary School Mathematics, Grade 1, Grade 2, Grade 3, Grade 4, Grade 5, Grade 6, *Mathematics, *Mathematics Curriculum

GRADES OR AGES: Grades 1-6. SUBJECT MATTER: Mathematics. ORGANIZATION AND PHYSICAL APPEARANCE: The introductory material includes an explanation of the new approach o teaching math and diagnostic tests (mathematics essentials inventories) for each grade. The main body of the guide deals with the concepts and contents of the program under the following headings: numbers and numerals, sets and sentences, whole numbers, rational numbers, measurement and money, geometry, other systems and bases, and problem solving. Each topic is subdivided by grade level. A final section deals with precision in the use of the mathematics vocabulary. The guide is mimeographed and spiral bound with a soft cover. OBJECTIVES AND ACTIVITIES: The overall objectives are listed at the beginning of the section on concepts and content, with more detailed objectives in the subdivisions of each topic. Sample activities are given on all topics for each grade. INSTRUCTIONAL MATERIALS: Bibliographies for children and teachers are provided. STUDENT ASSESSMENT: The mathematics essentials inventories are intended to be used as diagnostic and evaluative instruments. (MBM)

2829 ED 048 144
The Brevard County Mathematics Continuum.
Brevard County Board of Public Instruction, Titusville, Fla.
Pub Date—30 Jun 70
Note—621p.
EDRS Price - MF07/PC25 Plus Postage.
Descriptors—*Curriculum Guides, *Elementary School Curriculum, *Kindergarten, *Mathematics Curriculum

GRADES OR AGES: K-6. SUBJECT MATTER: Mathematics. ORGANIZATION AND PHYSICAL APPEARANCE: Although the content is divided into seven skill levels, variations may be made in their use and two topics may be taught simultaneously. Each level is organized in two parts, the first having columns showing activities with examples, textual resources; and related resources, the second containing tests and answer keys. The guide is xeroxed and spiral-bound with a plastic binder. OBJECTIVES AND ACTIVITIES: No specific objectives are given for each level. INSTRUCTIONAL MATERIALS: References are provided throughout the guide to relevant Houghton Mifflin materials, with a column for the teacher to note other suitable material. STUDENT ASSESSMENT: Tests are provided for each level to measure the mastery of single skills or a number of related skills. The use of these tests is explained in the strategy manual at the beginning of the guide. (MBM)

2830 ED 045 448
The Teaching of Modern Mathematics, K-6 [Instructional Model, Curriculum Guide, Scope and Sequence Guide and Teacher's Manual].
California Area School District, Pa.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—69
Note—157p.
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Curriculum Development, *Curriculum Guides, *Elementary School Mathematics, Instruction, *Instructional Materials, Modern Mathematics
Identifiers—Elementary Secondary Education Act Title III

Included in this set of materials is a description of an instructional model for elementary school mathematics, a curriculum guide developed by the elementary school teachers of the California Area School District, scope and sequence guides, and a teachers manual. The instructional model includes the use of pretests, posttests, prerequisites and behaviors as they relate to the idea of flexible grouping in elementary school mathematics. The teachers manual contains materials for each content item described in the curriculum guide as well as lesson plans, worksheets, prerequisites and content behaviors, pupil response sheets, enrichment materials, and individual record sheets. This work was prepared under an ESEA Title III contract. [Not available in hardcopy due to marginal legibility of original document.] (FL)

2831 ED 026 269
Gelbaum, Bernard B. And Others
[Orange County Science Education Improvement Project Syllabuses, K-6.]
Orange County Dept. of Education, Santa Ana, Calif.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—66
Note—819p.
EDRS Price - MF11/PC33 Plus Postage.
Descriptors—*Arithmetic, *Curriculum, *Elementary School Mathematics, Fundamental Concepts, *Instructional Materials, Mathematics, Number Concepts, *Teaching Guides, Teaching Methods

These syllabuses for K-6 were written, evaluated, and revised by a team of writers from the Orange County Science Education Improvement Project (OCSEIP). OCSEIP is a cooperative enterprise undertaken by the University of California (Irvine), California State College at Fullerton, the Orange County Schools Office, and local districts throughout Orange County. These syllabuses were written to help teachers teach the best aspects of recent mathematics programs. Presented are some methods of approach, intuitive examples, suggestions for additions and deletions, and applications in mathematics. The mathematical content for these syllabuses includes materials from geometry, sets, numbers and numerations, order and relations, addition and subtraction, problem solving, and measurement. (RP)

2832 ED 026 237
Guidelines for Mathematics in the Elementary School.
South Carolina State Dept. of Education, Columbia.
Pub Date—64
Note—32p.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Arithmetic, *Curriculum, *Curriculum Guides, *Elementary School Mathematics, Geometry, *Mathematics, Number Concepts, State Departments of Education, *Textbook Content, Textbook Evaluation
Identifiers—South Carolina

This publication identifies some of the underlying ideas relevant to improved mathematics programs of the elementary school. This publication does not prescribe a course of study. It does, however, provide ideas to assist school personnel in their analysis of mathematics programs and textbooks. It presents an orderly outline of topics and concepts of the improved mathematics programs of the elementary school. Included are (1) some of the major mathematical content that presently constitutes elementary mathematics textbooks, and (2) a set of criteria to be considered in the selection of textbooks. (RP)

2833 ED 018 276
MATHEMATICS FOR ELEMENTARY SCHOOL TEACHERS.
National Council of Teachers of Mathematics, Inc., Washington, D.C.
Pub Date—66
Note—219P.
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Algorithms, Arithmetic, *Elementary School Mathematics, *Mathematical Concepts, *Mathematics Instruction, Number Concepts, *Set Theory, *Teaching Guides, Textbooks

PRODUCED AS PART OF A PROJECT FOR THE IMPROVEMENT OF CLASSROOM TEACHING, THIS BOOK DISCUSSES THE BASIC CONCEPTS AND OPERATIONS OF ARITHMETIC WHICH ARE TAUGHT TO ELEMENTARY SCHOOL STUDENTS. THE CONCEPT OF A SET IS USED THROUGHOUT AS A BASIS FOR EXPLANATION, AND THE DISCUSSION STRESSES WAYS BY WHICH STUDENTS CAN BE BROUGHT TO UNDERSTAND THE CONCEPTS. THE FIRST CHAPTER COVERS BEGINNING NUMBER CONCEPTS–SETS, PAIRING, COUNTING. SUCCEEDING CHAPTERS COVER THE DECIMAL NUMERATION SYSTEM, ADDITION, MULTIPLICATION, SUBTRACTION, DIVISION, ALGORITHMS FOR ARITHMETIC COMPUTATIONS, AND THE WHOLE NUMBER SYSTEM. THE FINAL SECTIONS OF THE BOOK INCLUDE ANSWERS TO THE EXERCISES GIVEN IN THE CHAPTERS AND DESCRIPTIVE DEFINITIONS OF TERMS USED. THIS DOCUMENT IS AVAILABLE FROM THE NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS, 1201 SIXTEENTH STREET, N.W., WASHINGTON, D.C. 20036. (DR)

2834 ED 016 613
KOCH, RICHARD R.
GUIDELINES FOR MATHEMATICS IN THE ELEMENTARY SCHOOL.
Delaware State Dept. of Public Instruction, Dover.
Pub Date—SEP66
Note—219P.
EDRS Price - MF01/PC09 Plus Postage.
Descriptors—*Arithmetic, *Curriculum, *Curriculum Guides, *Elementary School Mathematics, *Mathematics, Measurement, *Teaching Guides, Teaching Methods
Identifiers—DELAWARE

THESE GUIDELINES FOR CLASSROOM TEACHERS OFFER SUGGESTIONS FOR TEACHING ELEMENTARY SCHOOL MATHEMATICS IN A MANNER TO REFLECT RECENT CHANGES IN CONTENT, TECHNIQUES, AND APPROACHES TO TEACHING MATHEMATICS. THE PURPOSES OF THESE GUIDELINES ARE (1) TO DETERMINE A DIRECTION FOR MATHEMATICS EDUCATION IN THE ELEMENTARY SCHOOLS OF DELAWARE, (2) TO PROVIDE A COMMON BASIS FOR THE MATHEMATICS CURRICULUM FOR THE CHILDREN, (3) TO PROVIDE A SOURCE OF INFORMATION FOR THE PLANNING OF INDIVIDUAL DISTRICT PROGRAMS, (4) TO ESTABLISH CRITERIA FOR A BALANCED CURRICULUM THROUGH WHICH TEACHERS MAY EVALUATE THEIR OWN INDIVIDUAL PROGRAMS, (5) TO DEVELOP A LOGICAL SEQUENTIAL PROGRAM FOR USE IN THE ELEMENTARY GRADES, AND (6) TO ENCOURAGE USE OF MATHEMATICAL LANGUAGE. RECOMMENDED APPROACHES AND METHODS OF PROCEDURE ARE EXPECTED TO LEAD TO THE FOLLOWING GOALS–(1) PROVIDING FOR INDIVIDUAL DIFFERENCES, (2) STRESSING PRINCIPLES RATHER THAN SPECIFICS, (3) BUILDING THE STUDENT'S CONFIDENCE IN HIS OWN DISCOVERY ABILITY AND CREATIVE THINKING, (4) DEVELOPING THE STUDENT'S ABILITY TO ANALYZE VERBAL PROBLEMS AND TO TRANSLATE THESE INTO A FORM WHICH LEADS TO THEIR SOLUTION, AND (5) DEVELOPING AN ABILITY ON THE PART OF THE STUDENT TO COMMUNICATE HIS UNDERSTANDING. (RP)

VARIED TOPICS: 7-12

2900 ED 183 410

Stitt, Mary Ostrom, Nat

Mathematics in Baseball. Topical Module for Use in a Mathematics Laboratory Setting.

Regional Center for Pre-Coll. Mathematics, Denver, Colo.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—73

Grant—NSF-GW-7720

Note—50p.; For related documents, see SE 030 304-322; Baseball statistics marginally legible; Best copy available

Pub Type— Guides - Classroom - Learner (051) — Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—*Baseball, Field Trips, *Learning Laboratories, *Mathematical Applications, Mathematics Curriculum, *Mathematics Instruction, Secondary Education, *Secondary School Mathematics, Worksheets

The objectives of this module include: (1) improving general arithmetic skills including whole numbers, fractions, and decimal fractions; (2) learning to compute averages; (3) strengthening knowledge of percent; (4) learning to locate needed information or statistical data; (5) reviewing or learning the use of the Pythagorean Theorem; (6) reinforcing knowledge of the concepts of area and volume; (7) learning to locate points on a coordinate system; and (8) making calculations related to a circle. Several strong recommendations concerning the use of this module are giyen. These are: (1) for motivational reasons, it should be used during baseball season, and (2) the annual film on the World Series produced by the Coca Cola Company should be shown as an introduction to the module. (MK)

2901 ED 183 403

Brotherton, Sheila And Others

Logic. Geometry Module for Use in a Mathematics Laboratory Setting.

Regional Center for Pre-Coll. Mathematics, Denver, Colo.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—74

Grant—NSF-GW-7720

Note—90p.; For related documents, see SE 030 304-322; Contains occasional light and broken type

Pub Type— Guides - Classroom - Learner (051) — Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC04 Plus Postage.

Descriptors—*Activities, Electric Circuits, Geometry, *Learning Laboratories, *Logic, *Mathematical Logic, Mathematics Curriculum, *Mathematics Instruction, Secondary Education, *Secondary School Mathematics, Worksheets

Within this single module there are two approaches to this brief survey of logic. Since most geometry textbooks fail to give an adequate discussion of logic, a "textbook" treatment of the subject has been included. This is found as explanations interspersed in the exercises and these can be used as a textbook approach. However, also included is an activities approach which appears at the beginning of each section. (Author/MK)

2902 ED 176 940

McNeil, Phillip E., Comp. And Others

Intervention Model: Mathematics.

Institute for Services to Education, Inc., Washington, D.C.

Pub Date—78

Note—227p.

Available from—Institute for Services to Education, 2001 S. Street, N.W., Washington, D.C. 20009 ($7.95)

Pub Type— Guides - Classroom - Learner (051)

EDRS Price - MF01/PC10 Plus Postage.

Descriptors—*Achievement, *Curriculum, *Educationally Disadvantaged, *Instruction, Secondary Education, *Secondary School Mathematics, *Textbooks

This competency-based model has been developed to upgrade the mathematical skills of typical minority students in urban high schools. The central philosophy is that an underprepared student of mathematics can be made computationally literate and mathematically viable in three semesters, whatever the level of preparation. Units covered are Arithmetic and Computation, Algebraic Expressions, Exponents and Radicals, Algebra of Equation Solving, Graphs and Their Interpretation, Geometry and Measurement, Basic Statistics, and Numerical Trigonometry. (MP)

2903 ED 175 706

Luce, R. D.

Studies in Mathematics, Volume I: Some Basic Mathematical Concepts.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—59

Note—169p.

Pub Type— Guides - Classroom - Learner (051)

EDRS Price - MF01/PC07 Plus Postage.

Descriptors—Curriculum, *Games, Independent Study, *Inservice Education, *Instruction, Mathematics, *Mathematics Education, Secondary Education, Secondary School Mathematics, *Set Theory

Identifiers—*Functions (Mathematics), *School Mathematics Study Group

This is one in a series of SMSG books on various topics directly related to high school mathematics courses, designed for the benefit of those mathematics teachers who wish to improve their teaching through independent reading. Particular attention is paid to topics which play an important part in the courses developed by SMSG. Chapter topics include sets, relations, orderings, functions, axiomatization of functions, and axiomatization of mathematical games. (MP)

2904 ED 175 703

Study Guides In Mathematics: Algebra, Geometry, Number Theory, Probability, and Statistics.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—62

Note—39p.

Pub Type— Reference Materials (130)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Algebra, *Bibliographies, Curriculum, Geometry, Higher Education, *Inservice Education, *Instruction, Mathematics, *Mathematics Education, Probability, Secondary Education, Secondary School Mathematics, Statistics, *Study Guides

Identifiers—*School Mathematics Study Group

This SMSG study guide is designed to provide assistance to teachers who wish to improve their professional competence by self-study or by group study. The main purpose of the guide is to list and organize suitable references. Topics covered include: (1) algebra; (2) geometry; (3) number theory; (4) probability; and (5) statistics. (MP)

2905 ED 173 097

School Mathematics Study Group, Unit Number Fifteen. Chapter 27 - Analyzing Geometric Figures. Chapter 28 - Measurement.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—68

Note—89p.; Not available in hard copy due to small, light and broken type

Pub Type— Guides - Classroom - Learner (051)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—*Algebra, *Analytic Geometry, Curriculum, *Instruction, Mathematics Education, *Measurement, Secondary Education, *Secondary School Mathematics, *Textbooks

Identifiers—*School Mathematics Study Group

This is unit fifteen of a fifteen-unit SMSG secondary school text for high school students. The text is devoted almost entirely to mathematical concepts which all citizens should know in order to function satisfactorily in our society. Chapter topics include analyzing geometric figures and measurement. (MP)

2906 ED 173 096

School Mathematics Study Group, Unit Number Fourteen. Chapter 25 - Statistics. Chapter 26 - Systems of Sentences in Two Variables.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—68

Note—93p.; Not available in hard copy due to small, light and broken type

Pub Type— Guides - Classroom - Learner (051)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—*Algebra, Curriculum, *Geometric Concepts, *Instruction, Mathematics Education, Secondary Education, *Secondary School Mathematics, *Statistics, *Textbooks

Identifiers—*School Mathematics Study Group

This is unit fourteen of a fifteen-unit SMSG secondary school text for high school students. The text is devoted almost entirely to mathematical concepts which all citizens should know in order to function satisfactorily in our society. Chapter topics include statistics and systems of sentences in two variables. (MP)

2907 ED 173 095

School Mathematics Study Group, Unit Number Thirteen. Chapter 22 - Approximations. Chapter 23 - Solution Sets of Mathematical Sentences. Chapter 24 - Quadratic Functions.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—68

Note—112p.; Not available in hard copy due to small, light and broken type

Pub Type— Guides - Classroom - Learner (051)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—*Algebra, Curriculum, *Instruction, Mathematics Education, *Number Concepts, Secondary Education, *Secondary School Mathematics, *Textbooks

Identifiers—*Estimation (Mathematics), Functions (Mathematics), *School Mathematics Study Group

This is unit thirteen of a fifteen-unit SMSG secondary school text for high school students. The text is devoted almost entirely to mathematical concepts which all citizens should know in order to function satisfactorily in our society. Chapter topics include approximations, solution sets of mathematical sentences, and quadratic functions. (MP)

2908 ED 173 094

School Mathematics Study Group, Unit Number Twelve. Chapter 19 - Rigid Motions and Coordinates. Chapter 20 - Squares and Rectangles. Chapter 21 - Square Roots and Real Numbers.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—68

Note—94p.; Not available in hard copy due to small, light and broken type

Pub Type— Guides - Classroom - Learner (051)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Algebra, *Analytic Geometry, Curriculum, *Geometry, *Instruction, Mathematics Education, *Number Concepts, Secondary Education, *Secondary School Mathematics, *Textbooks

Identifiers—*School Mathematics Study Group

This is unit twelve of a fifteen-unit SMSG secondary school text for high school students. The text is devoted almost entirely to mathematical concepts which all citizens should know in order to function satisfactorily in our society. Chapter topics include rigid motions and coordinates, squares and rectangles, and square roots and real numbers. (MP)

2909 ED 173 093

School Mathematics Study Group, Unit Number Eleven. Chapter 17 - Coordinate Geometry. Chapter 18 - Problem Analysis.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—68

Note—100p.; Not available in hard copy due to small, light and broken type

Pub Type— Guides - Classroom - Learner (051)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—*Algebra, *Analytic Geometry, Curriculum, *Instruction, Mathematics Education, *Problem Solving, Secondary Education, *Secondary School Mathematics, *Textbooks

Identifiers—*School Mathematics Study Group

This is unit eleven of a fifteen-unit SMSG secondary school text for high school students. The text is devoted almost entirely to mathematical concepts which all citizens should know in order to function satisfactorily in our society. Chapter topics include coordinate geometry and problem analysis. (MP)

2910 ED 173 092

School Mathematics Study Group, Unit Four. Chapter 7 - Equations and Inequalities. Chapter 8 - Congruence.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—68

Note—111p.; Not available in hard copy due to small, light and broken type

Pub Type— Guides - Classroom - Learner (051)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—*Algebra, *Congruence, Curriculum, Geometric Concepts, *Inequalities, *Instruction, Mathematics Education, Secondary Education, *Secondary School Mathematics, *Textbooks

Identifiers—*School Mathematics Study Group

This is unit four of a fifteen-unit SMSG secondary school text for high school students. The text is devoted almost entirely to mathematical concepts which all citizens should know in order to function satisfactorily in our society. Chapter topics include equations and inequalities and congruence. (MP)

2911 ED 173 087

Allen, Frank B. And Others

Intermediate Mathematics, Student's Text, Part II, Unit No. 18. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—65

Note—424p.; For related document, see ED 021 996; Contains occasional light type

Pub Type— Guides - Classroom - Learner (051)

EDRS Price - MF01/PC17 Plus Postage.

Descriptors—*Algebra, Curriculum, *Geometry, Grade 11, *Instruction, Mathematics Education, Number Systems, Secondary Education, *Secondary School Mathematics, *Textbooks

Identifiers—*Functions (Mathematics), *School Mathematics Study Group

This is part two of a two-part SMSG intermediate mathematics text for high school students. The aim of the text is to focus attention on mathematical ideas which are appropriate for study by college-capable students in the eleventh grade. Chapter topics include number systems, an introduction to coordinate geometry in the plane, the function concept and the linear function, quadratic functions and equations, complex number systems, equations of the first and second degree in two variables, systems of equations in two variables, and systems of first degree equations in three variables. (MP)

2912 ED 171 575

Sherling, Carole

Annotated Bibliography of Mathematics Curriculum, 1970-1978.

Pub Date—Dec 78

Note—37p.; Not available in hard copy due to marginal legibility of original document

Pub Type— Reference Materials - Bibliographies (131)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—*Annotated Bibliographies, *Curriculum, *Instruction, *Literature Reviews, *Mathematics Education, Publications, *Resource Materials, Secondary Education

This annotated bibliography on mathematics curriculum for secondary schools abstracts references from sources such as journal articles, books, selections from books, textbooks, teaching guides, conference reports, resource guides, program descriptions, and curriculum guides. Topics covered include goals of curriculum, reforms in curriculum, current issues in mathematics education, calculators and computers in the curriculum, and other current trends. (MP)

2913 ED 170 710

Pavlik, Robert A.

Making an Impact by...Reading in the Content Fields.

National Association of Secondary School Principals, Reston, Va.

Pub Date—May 79

Note—13p.; Curriculum Report, Volume 8, Number 4, May 1979

Available from—National Association of Secondary School Principals, 1904 Association Drive, Reston, Virginia 22091 (single copies, $0.50 each; Discounts on quantity orders; Payment must accompany orders of $10.00 or less)

Pub Type— Guides - Classroom - Teacher (052) — Reports - Descriptive (141) — Collected Works - Serials (022)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Communication (Thought Transfer), Content Analysis, *Content Area Reading, *Critical Reading, Elementary Secondary Education, Program Descriptions, *Reading Comprehension, *Reading Instruction, *Reading Programs, Teaching Methods, *Textbook Content

Noting that the terms "language of mathematics," "language of science," and "language of business" represent very real language differences which frustrate even good readers, this curriculum report suggests several procedures teachers might use to assist students in reading in varied content areas. The procedures include teaching students to recognize how textbook authors shape concepts by the use of sentences, paragraphs, and graphic aids; serving as models for students by adjusting reading rates, by learning new vocabulary, by identifying how authors' shape concepts, and by struggling with problems; selecting reading materials in content fields on the basis of conceptual as well as technical difficulty; and strengthening student responsibilities in reading assignments. Descriptions of several successful programs for content reading instruction are included. (DF)

2914 ED 167 382

Buchman, Paul Buchman, Aaron

Three-Year Sequence for High School Mathematics, Course III.

New York State Education Dept., Albany. Bureau of General Education Curriculum Development.; State Univ. of New York, Albany.

Pub Date—Jan 79

Note—44p.; For related document, see ED 134 473

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Curriculum, Curriculum Guides, *Grade 11, *Instruction, Secondary Education, *Secondary School Mathematics, *Teaching Guides, *Units of Study

Identifiers—*New York

This curriculum guide covers Course III of a three-year sequence for high school mathematics in New York which was intended to provide an alternative to the regular Regents sequence of ninth-, tenth-, and eleventh-grade mathematics. A listing of scope and content is provided along with suggested time allotments. Topics covered are: complex numbers, relations and functions, circular functions, transformation geometry, and probability and statistics. Material in each chapter is discussed and some teaching suggestions are made. (MP)

2915 ED 166 026

Mathematics Curriculum Guide, Grades 7-12.

North Carolina State Dept. of Public Instruction, Raleigh. Div. of Mathematics.

Pub Date—76

Note—58p.

Pub Type— Guides - General (050)

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—Course Content, *Course Descriptions, *Curriculum, *Instruction, *Objectives, Secondary Education, *Secondary School Mathematics, *State Curriculum Guides

The global objectives and content outlines of mathematics courses for grades 7 through 12 are listed and the overall rationale and goal of the courses are discussed. Several suggestions are made for changes in the curriculum. The contents include: A Curriculum of Choices, Grades 7 and 8, General Mathematics, Introductory Algebra, Algebra I, Geometry, Applied Vocational Mathematics, Algebra II, Consumer Mathematics, Advanced Mathematics, Calculus, and Additional Curriculum Considerations. (MP)

2916 ED 156 514

Kravitz, Brian C.

Addition: A High-Interest Workbook in Mathematics and Language.

New Jersey State Dept. of Education, Trenton. Div. of Vocational Education.; Rutgers, The State Univ., New Brunswick, N.J. Curriculum Lab.

Report No.—MA-451

Pub Date—Feb 78

Note—91p.

Available from—New Jersey Vocational Curriculum Lab., 4103 Kilmex Campus, Rutgers University, New Brunswick, New Jersey 08903 ($3.00 plus postage)

Pub Type— Books (010)

EDRS Price - MF01/PC04 Plus Postage.

Descriptors—Activity Units, *Addition, *English Education, *Instructional Materials, Language Aids, *Mathematics Education, Mathematics Materials, Secondary Education, Special Education, *Vocational Education, *Workbooks

This student workbook is intended for use in special-needs mathematics and language high school programs. The workbook consists of number activities, language activities, and addition drill sections along with survey tests and an addition diagnostic test. A vocabulary list is included which contains the meanings of words underlined in the book. (MN)

2917 ED 143 552

Maletsky, Evan M. And Others

Studies in Mathematics, Volume XII. A Brief Course in Mathematics for Junior High School Teachers. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—66

Note—400p.; For related documents, see SE 023 028-041; Contains numerous light type

Pub Type— Books (010)

EDRS Price - MF01/PC16 Plus Postage.

Descriptors—*Arithmetic, *Geometry, Inservice Education, Junior High Schools, Measurement, *Number Concepts, Secondary Education, *Secondary School Mathematics, Statistics, *Teaching Guides

Identifiers—*School Mathematics Study Group

This text was written under the auspices of the School Mathematics Study Group (SMSG) as a means for preparing teachers to teach the SMSG text Mathematics for Junior High School, Volume I. Included throughout are comments on suggested methods of presenting material to seventh graders. In this text, class exercises are interspersed throughout, with answers at the conclusion of each chapter. Answers to the exercises at the end of each chapter are found at the end of the book. The text was written with the thought that an instructor would be available, though sufficient details have been presented so that a teacher should be able to master the material independently. The material in the book should help any teacher teach a modern approach to mathematics that deals with: (1) an emphasis on the rationale of the fundamental operations; (2) a discussion of properties and structure of the number system; (3) attention to concepts of non-metric as well as metric geometry; and (4) exploration of other systems of numeration as a device for strengthening the understanding of our own decimal system. (Author/RH)

2918 ED 134 473

Bothamley, Herbert

Three-Year Sequence for High School Mathematics, Course I.

New York State Education Dept., Albany. Bureau of General Education Curriculum Development.

Pub Date—Oct 76

Note—40p.

Pub Type— Guides - General (050)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Curriculum, *Curriculum Guides, Grade 9, Instruction, Mathematics Education, Program Descriptions, Secondary Education, *Secondary School Mathematics, Teaching Guides, Units of Study

Identifiers—New York

This curriculum guide covers Course I of a three-year sequence for high school mathematics in New York which was intended to provide an alternative to the regular Regents sequence of ninth-, tenth-, and eleventh-grade mathematics. A listing of scope and content for Course I is provided, along with a suggested time allotment. Four mathematics units are covered: logic; aspects of algebra and geometry; probability, permutations, and statistics; and rectangular coordinate systems. For each of the units, the general goal for that unit and the material to be covered are discussed. Some teaching suggestions are given. Appendix 1 summarizes items generally required in a traditional ninth-grade algebra course but which are not required in Course I of this program. Appendix 2 suggests other possible orderings for topics in the course outline. (DT)

2919 ED 123 082
Cosler, Norma, Ed.
Individualized Math Problems in Trigonometry. Oregon Vo-Tech Mathematics Problem Sets.
Oregon Math Education Council, Salem.; Oregon State Dept. of Education, Salem. Career and Vocational Education Section.
Pub Date—74
Note—86p.; For related documents, see SE 020 628-648
Available from—Continuing Education Publications, P.O. Box 1491, Portland, Oregon 97207
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Individualized Instruction, *Instructional Materials, Mathematical Applications, Mathematics Education, *Problem Sets, Secondary Education, *Secondary School Mathematics, *Trigonometry, *Vocational Education
Identifiers—*Oregon Vo Tech Math Project

This is one of eighteen sets of individualized mathematics problems developed by the Oregon Vo-Tech Math Project. Each of these problem packages is organized around a mathematical topic and contains problems related to diverse vocations. Solutions are provided for all problems. Problems in this volume require the use of trigonometric and inverse trigonometric functions. They are drawn from eleven vocational areas: machine tools, drafting, industrial mechanics, auto mechanics, avaiation mechanics, forest products, forestry, fire and police science, diesel mechanics, electronics, and agriculture. (SD)

2920 ED 120 670
Earle, Richard A.
Teaching Reading and Mathematics. Reading Aids Series.
Pub Date—76
Note—91p.
Available from—International REading Association, 800 Barksdale Road, Newark, Delaware 19711 (Order No. 219, $4.50 nonmember, $3.00 member)
Pub Type— Guides - General (050)
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—Class Activities, *Content Area Reading, *Instructional Materials, Intermediate Grades, *Mathematics Instruction, *Reading Instruction, Reading Skills, Secondary Education, Teaching Guides, Teaching Methods

This monograph is designed to furnish classroom teachers with insight and ideas for teaching reading more carefully by emphasizing the what and how aspects of instruction. It is written for the teacher of mathematics in the middle and secondary grades who realizes the important relationship between effective reading skills and learning mathematics. At least one instructional suggestion per page is contained in what is intended as a practical and usable teaching guide. The guide includes such topics as learning to read mathematical symbols, skills for developing vocabulary, analyzing the meaning of words and comprehending the relationships among concepts, and assessing students' abilities. (RB)

2921 ED 107 529
Kolb, John R. Waters, William M., Jr.
The Secondary School Mathematics Curriculum.
Pub Date—Nov 74
Note—60p.; Report to the Division of Mathematics, North Carolina State Dept. of Public Instruction and the State Advisory Council on Secondary School Mathematics, November 74
Pub Type— Guides - General (050)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—*Curriculum, Curriculum Development, Educational Objectives, Instruction, *Mathematics Education, *Secondary Education, *Secondary School Mathematics, *State Curriculum Guides, Student Centered Curriculum, Textbooks

This report begins with a brief historical sketch of the origins of the mathematics curriculum and the responsiveness of mathematics curriculum to the demands of society. The current North Carolina mathematics curriculum is then described and evaluated. A "strands" approach to the development of curriculum and a framework for planning are then proposed. This framework is based on consideration of courses as student-centered (e.g., applied mathematics, consumer mathematics), subject-centered (e.g., algebra I, geometry) and mixed (e.g., business mathematics, applied geometry). The rationale for these strands is provided, and sequences of courses which students might elect are diagrammed. Individual courses, including a remedial clinic, are then described. Descriptions include sample materials where available, discussion of objectives and topics to be covered, and an overview of special issues related to each course. (SD)

2922 ED 102 023
Secondary Schools Curriculum Guide, Mathematics, Grades 10-12. Revised.
Cranston School Dept., R.I.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—74
Note—198p.; This is a revision to ED 077 740; Best Copy Available
Pub Type— Guides - General (050)
EDRS Price - MF01/PC08 Plus Postage.
Descriptors—Algebra, *Behavioral Objectives, Calculus, Computers, Curriculum, *Curriculum Guides, Geometry, Mathematics Education, Number Concepts, *Objectives, Probability, Secondary Education, *Secondary School Mathematics, Trigonometry
Identifiers—Elementary Secondary Education Act Title III, General Mathematics, *Objectives Bank

Behavioral objectives for grades 10 through 12 are specified for plane geometry, algebra, general mathematics, computer mathematics, slide rule mathematics, basic college mathematics, trigonometry, analytic geometry, calcuius and probability. Most sections present material in terms of portions of a school year. At least one major objective is stated for each section of the guide, encompassing the entire work for the unit. Several more specific objectives are also included in each section, intended to indicate level of learning, content, and means of evaluation. Each objective is followed by a list of suggested activities. (SD)

2923 ED 102 022
Secondary Schools Curriculum Guide, Mathematics, Grades 7-9. Revised.
Cranston School Dept., R.I.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—74
Note—181p.; This is a revision to ED 077 739
Pub Type— Guides - General (050)
EDRS Price - MF01/PC08 Plus Postage.
Descriptors—Algebra, *Behavioral Objectives, Curriculum, *Curriculum Guides, Geometric Concepts, Junior High Schools, *Mathematics Education, Number Concepts, *Objectives, *Secondary School Mathematics, Set Theory
Identifiers—Elementary Secondary Education Act Title III, *Objectives Bank

Behavioral objectives are specified for 82 topics in mathematics to be covered in grades 7 through 9. A general objective is given for each, followed by specific behavioral objectives with suggested activities. Topics include number properties and operations, geometry, number theory, algebra, set theory, ratio, proportion and percent, the metric system, etc. A separate college preparatory sequence is outlined, which includes units on trigonometry, metric geometry, linear and quadratic equations, logic, exponential and logarithmic functions, complex numbers, etc., in addition to those topics included in the regular course. (SD)

2924 ED 093 707
Kramer, Lynda H.
Math Review, Mathematics: 5265.01.
Dade County Public Schools, Miami, Fla.
Pub Date—72
Note—23p.; An Authorized Course of Instruction for the Quinmester Program
Pub Type— Guides - General (050)
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Algebra, Basic Skills, Behavioral Objectives, *Curriculum, Geometric Concepts, Instruction, *Mathematical Applications, Mathematics Education, *Objectives, Problem Solving, *Secondary School Mathematics, *Teaching Guides, Tests
Identifiers—*Quinmester Program

Designed for the students who have taken algebra and geometry and who need to strengthen their skills in problem solving and mathematical applications, this guidebook on minimum course content emphasizes the kinds of skills and procedures used in college placement tests. Overall course goals are specified, a course outline is provided, performance objectives are listed, and references keyed to the performance objectives are provided. Also included is a sample test with an answer key. (JP)

2925 ED 093 698
Trigonometry and Advanced Math. De Soto Parish Curriculum Guide.
DeSoto Parish School Board, Mansfield, La.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—Aug 71
Note—212p.
Pub Type— Guides - General (050)
EDRS Price - MF01/PC09 Plus Postage.
Descriptors—*Algebra, *Curriculum Guides, Geometric Concepts, Graphs, Instruction, Lesson Plans, *Number Concepts, Number Systems, Probability, *Secondary School Mathematics, Teaching Guides, Teaching Methods, *Trigonometry
Identifiers—Elementary Secondary Education Act Title I, *Functions (Mathematics)

The primary aim of this guide is to aid teachers in planning and preparing a senior high school mathematics course for students preparing for college work. It is divided into separate one-semester courses of seven chapters each. The first-semester course consists of a traditional approach to the introduction of trigonometry and trigonometric functions. The second-semester course represents a new approach, treating algebra, trigonometry, analytic geometry, and calculus in a unified manner rather than as four separate sections. Fundamental notions of the subject are unified into a sequence of topics beginning with the consideration of the real number system and the algebraic operations. Emphasis is placed on the importance of being able to visualize and graphically represent mathematical expressions. Ideas of algebra and geometry are presented in the study of linear, quadratic, and general polynomial functions. Permutations, combinations, and probability are treated as additional topics. For both courses, behavioral objectives are stated for each chapter and a set of abbreviated daily lesson plans is presented. (JP)

2926 ED 091 234
Caldwell, Christine, Comp. And Others
Curriculum Guide for Mathematics in Union Parish High Schools.
Union Parish School Board, Farmerville, La.
Pub Date—72
Note—228p.
Pub Type— Guides - General (050)
EDRS Price - MF01/PC10 Plus Postage.
Descriptors—*Algebra, Curriculum, *Curriculum Guides, *Geometry, Mathematical Applications, Objectives, *Secondary School Mathematics, *Vocational Education
Identifiers—Elementary Secondary Education Act Title III, General Mathematics

This basic guide to a complete secondary mathematics curriculum is designed to ensure that each student will be presented uniform mathematical concepts and principles, geared to his individual needs, abilities, and interests. The guide is not planned for use with a particular textbook; instead, it is to serve as a core around which each teacher can develop his program of instruction using a wide range of supplementary materials. Two program sequences are presented, one for college-preparatory students and one for vocational students. Mathematical procedures and concepts have been developed and arranged in a learning sequence. As a student completes one phase of the program, he can move immediately to the sequence that follows. The college-preparatory sequence is a continuum with interwoven new mathematical concepts presented by rigorous methods of deductive reasoning. The vocational-preparatory continuum is developed around problems that relate to occupations and careers and provides a review of the basic fundamentals of mathematics. Behavioral objectives are stated and resource books are listed for topics. (JP)

2927 ED 089 040

Trigonometry and Analytic Geometry: Curriculum Guide.

Harlandale Independent School District, San Antonio, Tex. Career Education Center.
Spons Agency—Office of Education (DHEW), Washington, D.C.; Texas Education Agency, Austin. Dept. of Occupational Education and Technology.
Pub Date—[70]
Note—100p.
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—*Analytic Geometry, Audiovisual Aids, *Career Education, *Curriculum Guides, *Educational Objectives, Instructional Materials, Performance Specifications, Resource Materials, *Secondary Education, Teaching Methods, Trigonometry, Units of Study
Identifiers—Texas

The guide (one-quarter trigonometry course; two-quarter analytic geometry course) provides both subject matter and career preparation assistance for advanced mathematics teachers. It is arranged in vertical columns relating curriculum concepts in trigonometry and analytic geometry to curriculum performance objectives, career concepts and teaching activities, suggested teaching methods, and audio-visual and resource materials. Space is provided for teachers' notes which will be useful when the guide is revised. (EA)

2928 ED 084 166

Worthington, Carolyn B.

Practical Trigonometry, Mathematics (Experimental): 5219.05.

Dade County Public Schools, Miami, Fla.
Pub Date—72
Note—35p.; An Authorized Course of Instruction for the Quinmester Program
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Behavioral Objectives, *Curriculum, Instruction, Mathematics Education, *Objectives, *Secondary School Mathematics, *Teaching Guides, Tests, *Trigonometry
Identifiers—Logarithms, *Quinmester Program

Designed for the student who has competence in general mathematical skills and who has interest in solving practical problems, this guidebook on minimum course content seeks further development of computational and problem solving skills through the applications of trigonometry and base ten logarithms. Overall course goals are specified, a course outline and suggested teaching strategies are provided, performance objectives are listed and text references and a sample posttest are included. (JP)

2929 ED 080 363

Madeheim, James

Third Year Math [Sahuarita High School Career Curriculum Project].

Sahuarita High School District 130, Ariz.
Pub Date—[73]
Note—74p.
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Activity Units, *Curriculum Guides, *Instructional Materials, Mathematics Education, Matrices, *Secondary School Mathematics, Teacher Developed Materials, *Units of Study, Worksheets
Identifiers—Functions (Mathematics), Logarithms

This volume contains three teacher-developed units for eleventh grade mathematics students. It serves as an introduction to logarithms, matrices, and functions. Units include statements of objectives, content discussions, worksheets, and exercises. In the logarithm unit the emphasis is on calculation, while in the matrices and functions units development and proof are considered as well. Related volumes in the series are SE 016 615, SE 016 617, and SE 016 618. (LS)

2930 ED 080 362

Madeheim, James

Mathematics [Sahuarita High School Career Curriculum Project].

Sahuarita High School District 130, Ariz.
Pub Date—[73]
Note—294p.
EDRS Price - MF01/PC12 Plus Postage.
Descriptors—Activity Units, Curriculum Guides, *Instructional Materials, Logic, *Mathematical Applications, *Mathematics Education, *Secondary School Mathematics, Teacher Developed Materials, Trigonometry, *Units of Study

This is a collection of units prepared by high school mathematics teachers to be used as a "career curriculum" guide. Each unit contains a statement of objectives, a discussion of the content, activity sheets, and exercises. The volume is organized into clusters so that an individual may choose the parts suited to individual needs. Major topics included are logic; ratio and proportion; volume; Boolean algebra; trigonometry, with emphasis on use of tables and with applications in the machine trades and in surveying; and vector mechanics, primarily determination of forces by the parallelogram method and by resolution into components and also including the use of dot product, cross product, and determinants. Related volumes in the series are SE 016 616 through SE 016 618. (LS)

2931 ED 070 908

Algebra: Level II, Unit 8, Lesson 1; Powers and Roots: Lesson 2; Geometry: Lesson 3; Number Series: Lesson 4. Advanced General Education Program. A High School Self-Study Program.

Manpower Administration (DOL), Washington, D.C. Job Corps.
Report No.—PM-431-57; PM-431-58; PM-431-59; PM-431-60
Pub Date—Nov 69
Note—199p.
EDRS Price - MF01/PC08 Plus Postage.
Descriptors—*Academic Education, Achievement Tests, Algebra, *Autoinstructional Aids, *Course Content, Credit Courses, *General Education, Geometry, *Independent Study, Mathematics Education, Number Systems, Secondary Education, Secondary School Mathematics

This self-study program for high-school level contains lessons on: Algebra, Powers and Roots, Geometry, and Number Series. Each of the lessons concludes with a Mastery Test to be completed by the student. (DB)

2932 ED 067 298

Johnson, David J.

Trigonometry 2, Mathematics: 5219.12.

Dade County Public Schools, Miami, Fla.
Pub Date—71
Note—25p.; An Authorized Course of Instruction for the Quinmester Program
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Behavioral Objectives, *Curriculum, Instruction, Mathematics Education, *Objectives, *Secondary School Mathematics, *Teaching Guides, Tests, *Trigonometry
Identifiers—*Quinmester Program

This booklet is the second of a two-part sequence of minimum content for trigonometry. It includes sum, difference, double-angle, and half-angle formulas; Law of Sines; Law of Cosines; inverse trigonometric functions; polar coordinates; and DeMoivre's Theorem. Goals, performance objectives for each unit, a course outline, references to state-adopted texts, and teaching suggestions are given. Sample pretests and posttests are included along with an annotated list of five references. For the other booklet in this sequence, see SE 014 899. (DT)

2933 ED 067 297

Johnson, David J.

Trigonometry 1, Mathematics: 5219.11.

Dade County Public Schools, Miami, Fla.
Pub Date—71
Note—25p.; An Authorized Course of Instruction for the Quinmester Program
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Behavioral Objectives, *Curriculum, Instruction, Mathematics Education, *Objectives, *Secondary School Mathematics, *Teaching Guides, Tests, *Trigonometry
Identifiers—*Quinmester Program

The first of a two-part sequence for the student who has had difficulty in second-year algebra, this booklet covers definitions and measurement of angles (in degrees and radians), the trigonometric functions, solving trigonometric equations and graphing functions, identities, and computation with base ten logarithms. Overall goals for the course are stated and performance objectives for each unit are specified. A course outline, references to state-adopted texts, and teaching suggestions are listed. Included are sample pretests and posttests and an annotated list of five references. For the other booklet in this sequence, see SE 014 900. (DT)

2934 ED 059 861

Central Iowa Low Achiever Mathematics Project – Area Measurement; Graphing Pictures; An Introduction to Flow Charting; First Probability Program.

Central Iowa Low-Achiever Mathematics Project, Des Moines.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—69
Note—158p.
EDRS Price - MF01/PC07 Plus Postage.
Descriptors—Arithmetic, Grade 7, Grade 8, Grade 9, Graphs, Instruction, *Instructional Materials, *Low Achievement, *Mathematics, Measurement, Probability, *Secondary School Mathematics

The materials in these units are designed especially for the low achiever student in junior high school mathematics. These materials are intended to be a source of new ideas for teachers who are trying to encourage interest, enthusiasm, and participation from low achieving students in mathematics. The four units in this collection contain mathematical materials involving area measurement, graphing, probability, and an introduction to flow charting. This work was prepared under an ESEA Title III contract. (RP)

2935 ED 055 913

Tenth Year Mathematics.

New York State Education Dept., Albany. Bureau of Secondary Curriculum Development.
Pub Date—71
Note—32p.; Reprint from the syllabus, Mathematics 10-11-12
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Algebra, Arithmetic, *Curriculum Guides, *Geometry, *Grade 10, Instruction, *Mathematics, Teaching Methods

The booklet presents the minimum material for which students are responsible on the Tenth Year Regents examination of the state of New York. The syllabus is an attempt to integrate plane geometry with arithmetic, algebra and numerical trigonometry brought about by: (1) greater use of fractions and percents in mensuration problems; (2) use of approximate number; (3) use of algebraic symbolism and proof; (4) use of algebraic equations in the solution of geometric problems; and (5) an introduction to coordinate geometry. The scope of content is: transition from informal to formal geometry, formal geometry (triangles, inequality, parallelism and perpendicularity, angle sum, locus, circles, angle measurement, similarity, areas, regular polygons and measurement of circles) constructions, formulas, arithmetic, algebra, trigonometry, and coordinate geometry. Suggestions for teaching, for time schedule and for sequencing are included. (JG)

2936 ED 055 847

Raschkow, William E.

The Professional's Guide for Instruction in Secondary Mathematics.

Kent Public Schools, Wash.
Pub Date—[71]
Note—308p.
EDRS Price - MF02/PC13 Plus Postage.
Descriptors—Curriculum, *Curriculum Guides, Instruction, Mathematics, *Secondary School Mathematics, *Teaching Guides

Presented is a general guide and syllabus for each of 14 secondary school mathematics courses offered by the Kent School District. Statements of the philosophy, organization, implementation, course sequences, requirements, guidance, and evaluation involved with the program are included. The courses for which a complete syllabus is offered include: Accelerated Math 7, Modern Math 7, Basic Math 7, Modern Math 8, Basic Math 8, Basic Math 9, Basic Math 1-2, Pre-Algebra 1-2, Algebra 1-2, Geometry 1-2, Algebra 3-4, Consumer Math, Trigonometry, and Mathematical Analysis. (JG)

2937 ED 054 962

Nicholson, Alan D.

The Math Resource Center for Secondary Schools

Montana State Dept. of Public Instruction, Helena.
Pub Date—71
Note—17p.
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Bibliographies, *Enrichment, *Instructional Materials, *Resource Centers, *Resource Materials, *Secondary School Mathematics

This document suggests ways of setting up a "Math Resource Center" and ideas for particular resources. Briefly discussed are the following: purpose of a resource center; supervision; physical facilities; and materials-library, math lab and games, computer, autio-visual materials, and office machines. Lists in the appendices include: journals, paperback booklets, selected bibliographies, selected sources of math lab equipment, games, and enrichment materials, commercial producers of materials for mathematics teaching, resource books, and commercially produced activity cards and packages. (Author)

2938 ED 053 927
Brant, Vincent
Trigonometry, A Tentative Guide Prepared for Use with the Text Plane Trigonometry with Tables.
Baltimore County Public Schools, Towson, Md.
Pub Date—65
Note—99p.
Available from—Baltimore County Public Schools, Office of Curriculum Development, Towson, Maryland 21204 ($2.00)
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—Curriculum, *Curriculum Guides, Instruction, Mathematics, *Secondary School Mathematics, *Teaching Guides, *Trigonometry

This teacher's guide for a semester course in trigonometry is prepared for use with the text "Plane Trigonometry with Tables" by E. R. Heineman. Included is a daily schedule of topics for discussion and homework assignments. The scope of each lesson and teaching suggestions are provided. The content for the course includes trigonometric functions, solution of right triangles, trigonometric equations and identities, oblique triangles, and inverse trigonometric functions. Also included are two supplementary units on special right triangles and set theory. (Author/CT)

2939 ED 052 021
Helwig, G. Alfred Sheppard, Anna G.
Review of Academic Mathematics, A Tentative Guide.
Baltimore County Public Schools, Towson, Md.
Pub Date—Jan 67
Note—95p.
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—*Algebra, *Course Content, *Geometry, Instructional Materials, Mathematical Concepts, Mathematics Education, Number Concepts, Secondary School Mathematics, *Teaching Guides

This teaching guide outlines a semester course for those students who need review work in concepts from algebra and geometry. Successful completion of this material would serve as a prerequisite to the study of trigonometry. Sequence, textbook references, and time allotments are suggested. Units studied are: the real numbers; operations on the real numbers; relations, functions, and graphs; first-degree equations; inequalities; quadratic equations; and logarithms. Appendices provide instruction in set concepts, properties of right triangles, relations, functions, and graphs. (RS)

2940 ED 050 071
Wyoming Mathematics Curriculum Guide, Grades 7-12.
Wyoming State Dept. of Education, Cheyenne.
Pub Date—70
Note—79p.
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—Auto Mechanics, *Curriculum Guides, Electronics, Engineering Drawing, Grade 7, Grade 8, Grade 9, Grade 10, Grade 11, Grade 12, Graphic Arts, *Industrial Education, *Mathematics, *Secondary School Mathematics, Trade and Industrial Education, *Vocational Education

GRADES OR AGES: 7-12; SUBJECT MATTER: Mathematics. ORGANIZATION AND PHYSICAL APPEARANCE: The guide has an introduction and four chapters: 1) A Sample Mathematics Curriculum; 2) The Exceptional Student in Mathematics; 3) Mathematics Components for Comprehensive Occupational Education; 4) Reference Materials. The guide is printed and spiral bound with a soft cover. OBJECTIVES AND ACTIVITIES: The guide makes no attempt to detail objectives or activities for each grade. General outlines are given for the low achiever and the mathematically talented in chapter 2. Chapter 3 lists activities and the related mathematical concepts for auto mechanics, electronics (electricity-radio), graphic communications, hospitality occupations, industrial drawing and drafting, and metal processing occupations. INSTRUCTIONAL MATERIALS: Chapter 4 lists texts, pamphlets, periodicals, sources of free and inexpensive materials, sources of transparencies for the overhead projector, sources of models and equipment, computer training kits, computer companies, and toys, games, and puzzles for learning mathematics. STUDENT ASSESSMENT: No specific provisions are made for evaluation. (MBM)

2941 ED 050 057
Mathematics Curriculum Guide. Mathematics IV.
Gary City Public School System, Ind.
Pub Date—69
Note—36p.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Achievement Tests, *Curriculum Guides, *Grade 12, *Mathematics, *Secondary School Mathematics

GRADES OR AGES: Grade 12. SUBJECT MATTER: Mathematics. ORGANIZATION AND PHYSICAL APPEARANCE: The subject matter is presented in four columns: major areas, significant outcomes, observations and suggestions, and films and references. The topics include: sets-relations-functions, circular functions, graphs of circular functions, inverses of circular functions, trigonometric functions of angle measures, introduction to vectors, the polar plane, complex numbers, and infinite series. The guide is mimeographed and spiral bound, with a soft cover. OBJECTIVES AND ACTIVITIES: Objectives for each major area are stated in behavioral terms. Activities are suggested but not listed in detail. INSTRUCTIONAL MATERIALS: Textbook references are given for each major area and there is a brief bibliography. No audio-visual materials are listed. STUDENT ASSESSMENT: Tests on major areas, with answers are included. (MBM)

2942 ED 049 049
Experiences in Mathematical Discovery, Unit 6, Mathematical Thinking.
National Council of Teachers of Mathematics, Inc., Washington, D.C.
Pub Date—71
Note—63p.
Available from—National Council of Teachers of Mathematics, NEA Publications, 1201 16th St., N.W., Washington, D.C., 20036 ($1.00)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Discovery Learning, Grade 9, *Instructional Materials, *Mathematics Materials, Modern Mathematics, *Problem Solving, Resource Materials, *Secondary School Mathematics

This is the sixth in a series of ten self-contained units designed for use by students in ninth grade general mathematics classes. This unit is divided into eight sections dealing with different types of mathematical thinking. Some topics presented include functions, permutations and combinations, symmetry, inductive thinking, and logic. Though the topics are standard they are dealt with in nontraditional methods emphasizing discovery learning. Included are many diagrams, exercises, and topics for discussion. (CT)

2943 ED 048 143
The Secondary Mathematics Laboratory Strategy Manual.
Brevard County Board of Public Instruction, Titusville, Fla.
Pub Date—30 Jun 70
Note—58p.
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—*Curriculum Guides, *Learning Laboratories, *Mathematics Curriculum, *Remedial Mathematics, *Secondary School Mathematics

GRADES OR AGES: 7-12. SUBJECT MATTER: Mathematics laboratory. ORGANIZATION AND PHYSICAL APPEARANCE: The guide has 10 sections: (1) introduction, explaining the nature of the student and the duties of the teacher; (2) personnel and their duties; (3) physical characteristics of the lab; (4) testing program; (5) evaluation procedure; (6) record keeping; (7) types of instruction; (8) initial organization; (9) description of the program; (10) recommendations for equipping a secondary mathematics laboratory classroom. The guide is xeroxed and spiral-bound with a soft cover. OBJECTIVES AND ACTIVITIES: No detailed objectives are set out, but the program is designed to meet the needs of the low achiever through the laboratory approach. Examples of activities are given in section 9. INSTRUCTIONAL MATERIALS: Section 10 contains a tentative listing of equipment divided into two categories-essential and desirable. STUDENT ASSESSMENT: Procedures for evaluation are set out in sections 5 and 6. (MBM)

2944 ED 046 775
Unified Modern Mathematics, Course 2, Part 2.
Secondary School Mathematics Curriculum Improvement Study, New York, N.Y.
Spons Agency—Columbia Univ., New York, N.Y. Teachers College.; Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No.—BR-7-0711
Pub Date—68
Contract—OEC-1-7-070711-4420
Note—304p.
EDRS Price - MF02/PC13 Plus Postage.
Descriptors—*Curriculum Development, Geometric Concepts, *Instructional Materials, Mathematics, *Modern Mathematics, Probability, *Secondary School Mathematics, Statistics, *Textbooks, Transformations (Mathematics)

Topics included in Part 2 of Course II are: real functions; descriptive statistics; transformations in the plane; length, area, and volume; combinatorics; and mass points. The chapter on real functions includes a discussion of properties of functions, composition of functions, inverses of functions and other topics. The chapter on descriptive statistics discusses the graphical representation of sets of data, summation notation, the arithmetic mean, measures of dispersion, and Chebyshev's Inequality. Reflections, translations, rotations, dilations, and similarities are introduced in the section on transformations of the plane. Lengths of line segments, areas of various geometric regions, and volumes of geometric solids are also studied. The Combinatorics chapter considers the counting principle, permutations, and the binomial theorem. The appendix offers a discussion of mass points in the plane and in space. (FL)

2945 ED 046 774
Unified Modern Mathematics, Course 2, Part 1.
Secondary School Mathematics Curriculum Improvement Study, New York, N.Y.
Spons Agency—Columbia Univ., New York, N.Y. Teachers College.; Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No.—BR-7-0711
Pub Date—69
Contract—OEC-1-7-070711-4420
Note—337p.
EDRS Price - MF02/PC14 Plus Postage.
Descriptors—Algebra, *Curriculum Development, Geometric Concepts, Geometry, Graphs, *Instructional Materials, Mathematical Logic, *Modern Mathematics, *Secondary School Mathematics, *Textbooks

This is Part 1 of the second course in a series which focuses on building fundamental mathematical structures. Topics considered in this book include: an introduction to mathematical logic and mathematical proof, a continuation of the study of groups, an introduction to axiomatic affine geometry, fields, the real number system, and coordinate geometry. The discussion of groups contains an example of a non-commutative group, theorems about groups, and the concept of isomorphism. Axioms for an affine geometry are given together with some logical consequences of these axioms and finite and infinite models for the axioms. The chapters on fields and the real number system include solving equations and inequalities, properties of the real number system and calculation with irrational numbers. (FL)

2946 ED 046 773
Unified Modern Mathematics, Course 2, Teachers Commentary.
Secondary School Mathematics Curriculum Improvement Study, New York, N.Y.
Spons Agency—Columbia Univ., New York, N.Y. Teachers College.; Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No.—BR-7-0711
Pub Date—[70]
Contract—OEC-1-7-070711-4420
Note—385p.
EDRS Price - MF03 Plus Postage. PC Not Available from EDRS.
Descriptors—Course Descriptions, *Curriculum Guides, *Instruction, *Instructional Materials, Mathematics, *Secondary School Mathematics, *Teaching Guides

This commentary is designed for use with "Unified Modern Mathematics, Course II," Parts 1 and

2. As in the commentary for "Course I," statements of the specific purposes and goals of each section of every chapter are presented. Also included are suggestions for teaching the concepts presented in each section, time estimates for each section, suggested instructional aids to presenting various concepts, and references for further study. Chapter examinations are provided which constitute comprehensive tests for each chapter. [Not available in hardcopy due to marginal legibility of original document.] (FL)

2947 ED 046 772
Unified Modern Mathematics, Course 1, Part 2.
Secondary School Mathematics Curriculum Improvement Study, New York, N.Y.
Spons Agency—Columbia Univ., New York, N.Y. Teachers College.; Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No.—BR-7-0711
Pub Date—68
Contract—OEC-1-7-070711-4420
Note—403p.
EDRS Price - MF03/PC17 Plus Postage.
Descriptors—Algebra, *Curriculum Development, Graphs, *Instructional Materials, *Modern Mathematics, *Secondary School Mathematics, Set Theory, *Textbooks

Part 2 of Course I includes a study of set theory, transformations of the plane; properties of lines, planes, line segments and angles; elementary number theory; and rational numbers. Decimal fractions, ratio and proportion, percent, and presenting data using graphs are also presented. (FL)

2948 ED 046 771
Unified Modern Mathematics, Course 1, Part 1.
Secondary School Mathematics Curriculum Improvement Study, New York, N.Y.
Spons Agency—Columbia Univ., New York, N.Y. Teachers College.; Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No.—BR-7-0711
Pub Date—68
Contract—OEC-1-7-070711-4420
Note—346p.
EDRS Price - MF02/PC14 Plus Postage.
Descriptors—Algebra, *Curriculum Development, *Instructional Materials, *Modern Mathematics, Number Systems, Probability, *Secondary School Mathematics, Statistics, *Textbooks

This is Part 1 of the first course in a series which focuses on building fundamental mathematical structures. The arithmetic studied in elementary school along with modular arithmetic is examined and set notation and mappings of sets are presented. Mathematical group structures are introduced. Points and numbers are related both on a line and in a lattice framework. (FL)

2949 ED 046 770
Unified Modern Mathematics, Course 1, Teachers Commentary.
Secondary School Mathematics Curriculum Improvement Study, New York, N.Y.
Spons Agency—Columbia Univ., New York, N.Y. Teachers College.; Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No.—BR-7-0711
Pub Date—[70]
Contract—OEC-1-7-070711-4420
Note—374p.
EDRS Price - MF03 Plus Postage. PC Not Available from EDRS.
Descriptors—Course Descriptions, *Curriculum Guides, *Instruction, *Instructional Materials, Mathematics, *Secondary School Mathematics, *Teaching Guides

This commentary is designed for use with "Unified Modern Mathematics, Course I," Parts 1 and 2. Included in the commentary are statements of the specific purposes and goals of each section of every chapter, suggestions for teaching the concepts presented in each section, time estimates for each section, suggested instructional aids for presenting various concepts, and references for further study. Also, suggested chapter examinations are provided which constitute comprehensive tests for each chapter. [Not available in hardcopy due to marginal legibility of original document.] (FL)

2950 ED 046 737
Chapman, Frank L.
The Sea and Modern Man.
Carteret County Public Schools, Beaufort, N.C.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
Pub Date—Aug 70
Note—25p.
Available from—Regional Marine Science Project, Carteret County Public Schools, Beaufort, N.C. 28516 (Free)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—Curriculum Guides, Ecology, *Elementary School Science, Environmental Education, *Instructional Materials, *Oceanography, Reading Materials, *Textbooks
Identifiers—Elementary Secondary Education Act Title III

This publication is designed for use as part of a curriculum series developed by the Regional Marine Science Project. As an informative text for a three-week unit in marine science for grade six, it considers man's role in using coastal resources and how he affects the marine environments. An ecological approach to nature is emphasized, stressing the ties between culture, economy, and resource use. Topics are divided into three units: Food and Recreation, Transportation, and Minerals and Conservation. Each unit includes a vocabulary, fill-in questions, and disucssion topics. Numerous diagrams illustrate topics discussed. This work was prepared under an ESEA Title III contract. (BL)

2951 ED 036 430
Firl, Donald H. And Others
Experiences in Mathematical Discovery. Units 1-5; Unit 1, Formulas, Graphs and Patterns; Unit 2, Properties of Operations with Numbers; Unit 3, Mathematical Sentences; Unit 4, Geometry; Unit 5, Arrangements and Selections; and Answers for Units 1-5.
National Council of Teachers of Mathematics, Inc., Washington, D.C.
Pub Date—67
Note—449p.
Available from—National Council of Teachers of Mathematics, 1201 Sixteenth Street, N.W., Washington, D. C. 20036 (May be purchased separately)
EDRS Price - MF04 Plus Postage. PC Not Available from EDRS.
Descriptors—Geometry, *Grade 9, *Instructional Materials, *Mathematical Concepts, Mathematics, Mathematics Education, Number Concepts, *Secondary School Mathematics

This series of booklets is designed for use by students of ninth grade general mathematics. The units are the result of experimental work done by the General Mathematics Writing Project of the National Council of Teachers of Mathematics. The series treats a variety of topics which are suitable for use with general mathematics students. Each unit is self-contained. The titles of units 1-5 are as follows: Unit 1: Formulas, Graphs, and Patterns; Unit 2: Properties of Operations with Numbers; Unit 3: Mathematical Sentences; Unit 4: Geometry; Unit 5: Arrangements and Selections. Also included is a booklet containing correct answers to exercises in units 1-5. (FL)

2952 ED 026 270
Gelbaum, Bernard B And Others
[Orange County Science Education Improvement Project Syllabuses, 7-12.]
Orange County Dept. of Education, Santa Ana, Calif.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—66
Note—933p.
EDRS Price - MF13/PC38 Plus Postage.
Descriptors—Algebra, Calculus, *Curriculum, Geometry, Instructional Materials, *Mathematics, *Secondary School Mathematics, Teaching Methods

These syllabuses for grades 7-12 were written, evaluated, and revised by a team of writers from the Orange County Science Education Improvement Project (OCSEIP). OCSEIP is a cooperative enterprise of the University of California (Irvine), California State College at Fullerton, the Orange County Schools Office, and local districts throughout Orange County. These syllabuses were written to help teachers teach the best aspects of recent mathematics programs. Presented are methods of approach, intuitive examples, and applications in mathematics. The content for these syllabuses includes modern mathematical concepts designed for junior and senior high school programs. (RP)

2953 ED 026 236
Guidelines for Mathematics in the Secondary School
South Carolina State Dept. of Education, Columbia.
Pub Date—65
Note—136p.
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—Advanced Programs, Algebra, Analytic Geometry, Course Content, Curriculum, *Curriculum Guides, Geometry, Instruction, Instructional Materials, *Mathematics, *Number Concepts, Number Systems, *Secondary School Mathematics
Identifiers—South Carolina

This guide contains an outline of topics to be included in individual subject areas in secondary school mathematics and some specific suggestions for teaching them. Areas covered include (1) fundamentals of mathematics included in seventh and eighth grades and general mathematics in the high school, (2) algebra concepts for courses one and two, (3) geometry, and (4) advanced mathematics. The guide was written with the following purposes in mind-(1) to assist local groups to have a basis on which to plan a mathematics course of study, (2) to give individual teachers an overview of a particular course or several courses, and (3) to provide specific suggestions for teaching such topics. (RP)

2954 ED 024 600
Mathematics 9th Year.
New York City Board of Education, Brooklyn, N.Y. Bureau of Curriculum Development.
Pub Date—66
Note—318p.
Available from—New York City Board of Education, Publications Sales Office, 110 Livingston Street, Brooklyn, New York 11201 ($4.00).
EDRS Price - MF02 Plus Postage. PC Not Available from EDRS.
Descriptors—*Algebra, Boards of Education, Curriculum, Geometry, Grade 9, *Instruction, Mathematical Concepts, *Mathematics, Number Concepts, *Secondary School Mathematics, *Teaching Guides
Identifiers—New York, New York (New York)

The Materials in this bulletin indicate suggested teaching procedures needed to implement the teaching of "mathematics, 9th Year" as outlined in Curriculum Bulletin No. 3, 1958-59 series, Course of Study Mathematics 7-8-9. Whereas the course of study suggests the application of mathematical principles such as commutativity, associativity, and distributivity to algebraic skills and techniques, in this bulletin detailed methods for helping pupils to develop these mathematical concepts are given. Topics include symbols, signed numbers, algebra, polynomials, equations and inequalities, equations and graphs, factoring, fractions, real numbers, quadratic equations, ratio and proportion, and indirect measurement. (RP)

2955 ED 021 762
Curriculum and Teaching of Mathematics in the Higher Secondary Schools.
National Council of Educational Research and Training, NIE Campus, New Delhi (India). Dept. of Curriculum and Evaluation.
Spons Agency—Office of Education (DHEW), Washington, D.C. Bureau of Research.
Report No.—NIE-HEW-NO-009
Bureau No.—BR-5-1402
Note—426p.
EDRS Price - MF04/PC18 Plus Postage.
Descriptors—*Course Content, *Curriculum, Curriculum Development, *Curriculum Guides, *Mathematics, Objectives, *Secondary School Mathematics, Teaching Methods
Identifiers—India, India (New Delhi)

This curriculum guide for general mathematics consists of the development of a number of basic concepts which are chosen because of their relevance to problems of applications. These concepts are classified under the following strands-(1) concept of number, (2) concepts basic to operations, (3) concepts of percent and percentage, (4) concepts basic to geometric form and position, (5) concepts of measurement, (6) concepts of functional relationship, (7) concepts of comparison, (8) concepts of probability, (9) concepts of set, (10) concepts of limit, (11) concepts of infinity. All the concepts are developed continuously and simultaneously through four years of high school and at varying leves of sophistication and difficulty. (RP)

2957 **ED 016 615**
AN EXPERIMENTAL COURSE IN MATHEMATICS FOR THE NINTH YEAR. UNIT 12, TRIGONOMETRIC FUNCTIONS.
New York State Education Dept., Albany.
Pub Date—65
Note—70P.
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—*Curriculum, *Curriculum Guides, Grade 9, *Mathematics, *Secondary School Mathematics, *Teaching Guides, *Trigonometry
Identifiers—NEW YORK

THIS TEACHING GUIDE FOR TRIGONOMETRY IS THE FINAL UNIT OF A SERIES OF 12 UNITS FOR AN EXPERIMENTAL COURSE IN MATHEMATICS FOR GRADE 9. BACKGROUND MATERIAL FOR TEACHERS AS WELL AS QUESTIONS AND ACTIVITIES FOR CLASSROOM PRESENTATIONS ARE PROVIDED. A GLOSSARY OF MATHEMATICAL TERMS FOR THE 12 UNITS CONCLUDES THE REPORT. (RP)

VARIED TOPICS: POST SECONDARY

3000 ED 180 750
Benjamin, Carl And Others
College Arithmetic and Pre-Algebra.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—[75]
Grant—NSF-GZ-2998
Note—104p.; For related documents, see SE 029 345-348; Colored pages may not reproduce well
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—*Arithmetic, *College Mathematics, Criterion Referenced Tests, Decimal Fractions, Diagnostic Tests, *Educational Objectives, Fractions, Geometric Concepts, Higher Education, Measurement, Percentage, *Performance Criteria, Ratios (Mathematics), Set Theory, Whole Numbers
Identifiers—*Pre Algebra

Presented are student performance objectives, a student progress chart, and assignment sheets with objective and diagnostic measures for the stated performance objectives in college arithmetic and prealgebra. Topics covered include: sets, whole numbers, integers, decimal fractions, fractions, ratio and proportion, percent, powers and roots, the Pythagorean theorem, measurement, and open sentences. (MK)

3001 ED 180 749
Benjamin, Carl And Others
College Arithmetic.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—[75]
Grant—NSF-GZ-2998
Note—81p.; For related documents, see SE 029 346-348; Some colored pages may not reproduce well
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—*Arithmetic, *College Mathematics, *Criterion Referenced Tests, Decimal Fractions, *Diagnostic Tests, *Educational Objectives, Fractions, Higher Education, Measurement, Percentage, *Performance Criteria, Ratios (Mathematics), Tests, Whole Numbers

Presented are student performance objectives, a student progress chart, and assignment sheets with objective and diagnostic measures for the stated performance objectives in college arithmetic. Topics covered include: whole numbers, decimal fractions, fractions, ratio and proportion, percent, powers and roots, and the metric system of measurement. (MK)

3002 ED 146 001
Artis, Margaret, Ed. And Others
Sets and Logic.
Institute for Services to Education, Inc., Washington, D.C.
Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Bureau No.—BR-7-0867
Pub Date—71
Contract—OEC-0-8-070867-0001
Note—91p.; Appendix material from ED 084 936; For related documents, see SE 019 971-974 ; Some pages are marginally legible due to print quality
Pub Type— Guides - General (050)
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—*College Mathematics, Higher Education, *Instructional Materials, *Logic, Mathematics, Mathematics Education, Secondary School Mathematics, *Set Theory, *Teaching Guides
Identifiers—*Thirteen College Curriculum Program

Part I of this guide develops sets and set operations: listing and describing sets, characteristics of sets, universal empty sets, unions and intersections of sets, properties under set operations, differences and complements of sets, Venn diagram interpretations, set notation, ordered pairs, Cartesian products, and equivalent sets. Part II deals with logic in terms of truth values of statements, conditional statements, conjunctions, disjunctions, equivalences, and negations, logic symbols, truth tables, determining logical validity of arguments (including Modus Tollens, Modus Tollendo Ponens, basic syllogisms), universal and existential quantifiers, symbols of quantification, and indirect proof (contradiction). The guide includes basic student exercises, challenges, suggested teacher questions, and pictorial illustrations of topics. (JW)

3003 ED 144 816
Basic Library List for Four-Year Colleges. Second Edition.
Mathematical Association of America, Berkeley, Calif. Committee on the Undergraduate Program in Mathematics.
Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—76
Grant—NSF-HES-620019
Note—111p.; For related document, see ED 022 698; Not available in hard copy due to copyright restrictions
Available from—The Mathematical Association of America, 1225 Connecticut Ave., N.W., Washington, D.C. 20036 ($4.50)
Pub Type— Reference Materials - Bibliographies (131)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Bibliographies, *College Mathematics, Library Acquisition, *Library Material Selection, *Mathematics, *Reference Materials, Undergraduate Study
Identifiers—*Committee on the Undergraduate Program in Math, Mathematical Association of America

This revision of a 1965 publication lists approximately 700 titles on mathematics for four-year colleges. The titles are grouped by mathematical content; included also are categories for general, foundations, journals, series, films, and foreign-language references. The purposes of the list are to provide: (1) students with introductory, collateral, and supplementary reading; (2) faculty with relevant reference material; and (3) general readers with interesting mathematical reading. The list can be used as a guide in updating and extending library holdings. (MS)

3004 ED 137 511
Self, Samuel L.
Community College Technical Mathematics Project. Final Report.
Texas A and M Univ., College Station. Coll. of Education.
Spons Agency—Office of Education (DHEW), Washington, D.C.
Bureau No.—V0016VZ
Pub Date—Dec 75
Grant—OEG-0-74-1706
Note—330p.
Pub Type— Reports - Descriptive (141)
EDRS Price - MF01/PC14 Plus Postage.
Descriptors—Autoinstructional Aids, Auto Mechanics, *Curriculum Development, Curriculum Guides, Drafting, Educational Research, Electronic Technicians, Individualized Instruction, Instructional Materials, *Job Skills, Machine Repairers, *Mathematical Concepts, *Mathematics Curriculum, Mathematics Materials, Postsecondary Education, Printing, Radio, Refrigeration Mechanics, Research Projects, Skill Development, Technical Education, Television Radio Repairers, Two Year Colleges, Vocational Education, Welding

The purpose of the research project was to develop an applied or technical mathematics curriculum which would meet the needs of vocational-technical students at the community college level. The research project was divided into three distinct phases: Identifying the mathematical concepts requisite for job-entry competencies in each of the occupational areas, arranging these mathematical competencies into a structure of sequential units, and developing curriculum materials for each of these units. Staff members from 10 community colleges in Texas participated in the survey to help determine and validate job competencies for the occupational areas of diesel mechanics, auto mechanics, radio/TV repair, air conditioning, welding, machine shop, printing, drafting, and electronics. The specific project results included (1) a list of mathematical concepts requisite for entry-level competencies in each of the selected occupational areas, (2) a set of structured, sequential technical mathematics units designed to meet the needs of vocational-technical students in the selected occupational areas, (3) curriculum guides for each of the technical mathematics units, (4) self-instructional learning packets for each of the technical mathematics units, and (5) performance-based pre- and posttests for each of the technical mathematics units. This final report consists of four major components: Narrative report; the taxonomy (composite and individual) of competencies (appendix C); five exemplary minimodules (appendix D); and curriculum guides for each of the major divisions of competencies identified in the taxonomy (appendix E). Appendixes C and D constitute most of the document. (HD)

3005 ED 137 104
Schoen, Harold L.
Individualized Mathematics Instruction: How Effective Has It Been in Secondary and Post Secondary Schools?
Pub Date—[76]
Note—16p.; For related documents, see SE 022 305-306
Pub Type— Reference Materials - Bibliographies (131)
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—*College Mathematics, Curriculum, Higher Education, *Individualized Instruction, Instruction, Mathematics Education, *Research Reviews (Publications), Secondary Education, *Secondary School Mathematics

A review of studies comparing self-paced individualized programs with other teaching approaches at the secondary and post secondary level is presented in this paper. First, the teaching approaches used and the statistical design employed in the studies are described. Then, the studies are classified as secondary or post secondary, and the results are reported. Finally, an overall interpretation of the results is given. (DT)

3006 ED 116 929
Posey, Johnsie Jo, Ed. And Others
Topics in Mathematics.
Institute for Services to Education, Inc., Washington, D.C.
Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Bureau No.—BR-7-0867
Pub Date—72
Contract—OEC-0-8-070867-0001
Note—247p.; Appendix material from ED 084 936; Occasional marginal legibility
Pub Type— Guides - General (050)
EDRS Price - MF01/PC10 Plus Postage.
Descriptors—*College Mathematics, Experiential Learning, Guides, Higher Education, Instruction, *Instructional Materials, *Mathematical Enrichment, Secondary Education, *Secondary School Mathematics, *Teaching Guides
Identifiers—Thirteen College Curriculum Program

This manual is a collection of materials and teaching strategies to motivate the development of mathematical ideas in secondary school mathematics programs or in beginning college mathematics programs. The unit is written for the instructor with step-by-step procedures including lists of needed materials. The exercises in this unit also appear in the separate publication, "Experiments in Experimental Mathematics." Contents include: geoboard activities in area and with the Pythagorean Theorem; exercises with arithmetic numerals; problems illustrating balance relationships; perfect number exercises, hidden combinations, and coordinate graphing; arrays, polynomials, and finite differences; physical problems that introduce convergent and divergent series; map coloring (Euler's Theorem); the analysis and prediction of patterns of motion with cycloids and area; and the Euler function. The unit concludes with more than 18 short investigations such as Tower of Hanoi Puzzle, box problem, Kongisberg Bridges problem, limits of sequences, and games that employ mathematical analysis. (Author/JBW)

3007 ED 115 489
Main, R. E.
The Practical Arithmetic Self-Study (PASS) Course. Book II–Course Lessons.
Navy Personnel Research and Development Center, San Diego, Calif.
Pub Date—Sep 73
Note—224p.; For Book I, see SE 019 748
Pub Type— Books (010)
EDRS Price - MF01/PC09 Plus Postage.
Descriptors—*Arithmetic, Autoinstructional Aids, *Basic Skills, *Mathematics Education, Postsecondary Education, *Programed Instruction, Programed Instructional Materials, *Remedial Mathematics, *Textbooks

This self-study book contains 25 lessons in practical mathematics. The lessons include: (1) multiplication and division of whole numbers; (2) the four basic operations with fractions and decimals; (3)

understanding mathematics symbols; (4) using formulae and solving and checking simple equations; (5) percentage problems and applications; (6) measurement of length, area, volume using English units of measure; (7) rates and averages; and (8) ratio and proportions. Course description, directions for testing and training, quizzes and answers are bound in a separate book (book I). (JBW)

3008 ED 115 483
Main, R. E.
The Practical Arithmetic Self-Study (PASS) Course. Book I–Directions and Auxiliary Materials.
Navy Personnel Research and Development Center, San Diego, Calif.
Pub Date—Sep 73
Note—97p.; For Book II, see SE 019 852
Pub Type— Guides - General (050)
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—*Arithmetic, Autoinstructional Aids, *Basic Skills, *Mathematics Education, Postsecondary Education, *Programed Instruction, Programed Instructional Materials, Program Guides, *Remedial Mathematics, *Teaching Guides, Textbooks

This guidebook to a self-study course in practical mathematics contains: (1) the course description; (2) directions for testing and training; and (3) lesson progression sheets, quizzes, quiz answers, and lesson answers. The 25 quizzes cover multiplication and division of whole numbers, operations with fractions and decimals, understanding math symbols, solving equations, percent problems and applications, measurement problems, rates and average problems, and ratios and proportions. The student self-study book is bound separately as book II. (JBW)

3009 ED 106 114
Basic Mathematics, Programmed Text. Edition 9. Engineer Subcourse 120-9.
Army Engineer School, Fort Belvoir, Va.
Pub Date—Apr 74
Note—282p.
Pub Type— Books (010)
EDRS Price - MF01/PC12 Plus Postage.
Descriptors—*Basic Skills, *Engineering Education, Independent Study, Instructional Materials, *Mathematics Education, *Postsecondary Education, *Programed Instruction, Textbooks

This course is designed to teach the student to perform basic mathematics operations correctly. It consists of seven lessons and an examination as follows: Introduction to Arithmetic and Whole Numbers, Common Franctions, Decimals, Unit Conversion, Ratios and Proportions, Percentage, Powers and Roots, and the examination. The course uses the technique of programed instruction. (Author/KM)

3010 ED 103 089
Coole, Walter A.
Oleanna Math Program Smorgasbord (I).
Skagit Valley Coll., Mount Vernon, Wash.
Note—37p.; For a related document, see JC 750 242
Pub Type— Guides - General (050)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Autoinstructional Aids, *College Mathematics, *Course Content, Course Descriptions, Individualized Instruction, Learning Laboratories, Mathematical Enrichment, Programed Instruction, *Secondary School Mathematics, Self Directed Classrooms, *Two Year Colleges
Identifiers—*Skagit Valley College WA

This packet is a compilation of short units and quick review assignments used in the Oleanna Math Program at Skagit Valley College (Washington). This math program is taught in an auto-tutorial learning laboratory situation with programmed materials. Each unit of study is contained on a 5" by 8" card, which describes performance objectives, prerequisites, approximate completion time, and necessary texts and other materials. The masters are supplied in this document on 8 1/2" by 11" stock, but copies may be cut to 5" by 8" sheets to meet access and filing needs. These sheets are easily rearranged for special needs of the reader, whether he is a student, learning laboratory instructor, or counselor. File categories include: mathematical principles, calculating devices, (slide rules, hand calculators, etc.), data processing, applications (nursing, business administration, consumer mathematics, science, metric system), fun, miscellaneous, locally developed modules, and local courses developed from Smorgasbord contents. These sheets may be used to construct personalized courses of study at the rate of 33 clock hours per quarter credit. (DC)

3011 ED 103 088
Coole, Walter A.
Oleanna Math Program Materials.
Skagit Valley Coll., Mount Vernon, Wash.
Note—178p.; For a related document, see JC 750243
Pub Type— Guides - General (050)
EDRS Price - MF01/PC08 Plus Postage.
Descriptors—*Autoinstructional Aids, *College Mathematics, Course Content, Course Descriptions, *Curriculum Guides, Learning Laboratories, Mathematical Enrichment, Mathematics Curriculum, Programed Instruction, *Secondary School Mathematics, Self Directed Classrooms, Tests, *Two Year Colleges
Identifiers—*Skagit Valley College WA

This document is a collection of course outlines, syllabi, and test materials designed for several high school level and lower division mathematics courses taught in an auto-tutorial learning laboratory at Skagit Valley College (Washington). The courses included are: Pre-Algebra, Basic Algebra, Plan Geometry, Intermediate Algebra, Probability and Statistics, Functions and Relations, Periodic Functions, Analytic Geometry, Differential and Integral Calculus. To determine his entering level, each student solves increasingly more difficult problem on the Student Decision Placement Test, which is included; his level of ease determines his proper program entry level. Students attend one schedule conference each week and may study in the learning laboratory at other times. Most of the work is completed in programmed textbooks. Only "A" and "B" grades are given. Each course outline contains performance objectives, course goals, average student completion time, and the number of credits allotted, as well as a list of suggested student materials and texts. Each course is presented with two approaches (tracks)–one for those who are prepared for, but unfamiliar with, the course material, and one for review and in-depth study. (DC)

3012 ED 040 325
High School Equivalency: Mathematics. Part II: Curriculum Resource Handbook.
New York State Education Dept., Albany. Bureau of Special Continuing Education
Pub Date—70
Note—82p.
Available from—The State Education Department, Bureau of Continuing Education Curriculum Development, Albany, N.Y. (free to school personnel when ordered through school administrator)
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—Adult Students, *Concept Formation, *Curriculum Guides, Equivalency Tests, *Instructional Materials, *Mathematics, Problem Solving, *Secondary School Curriculum, Teaching Methods
Identifiers—General Educational Development Tests

This mathematics curriculum resource handbook provides background information and techniques of instruction designed for instructors helping students to prepare themselves for the General Educational Development Tests. It consists largely of fundamental concepts which high school graduates are expected to retain, together with some techniques which may be of use in developing these concepts. Two specific although not "new," approaches to the presentation of mathematics characterize this program. The first is the importance placed on the language of mathematics as a unifying concept. The second approach is the use of manipulative devices. Wherever possible, it is desirable to use paper constructions, models, and movable figures as teaching methods. Emphasis is placed on the general area of problem solving. An annotated list of instructional materials (textbooks, workbooks, and review books) and the addresses of the publishers are included. (Author/NL)

3013 ED 012 836
GRAHAM, MINNIE M.
ADULT BASIC EDUCATION WORK BOOK IN BASIC ARITHMETIC. PARTS I AND II.
Danbury Public Schools, Conn.
Pub Date—66
Note—146P.
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—*Adult Basic Education, *Arithmetic, Instructional Materials, *Workbooks
Identifiers—CONNECTICUT, Connecticut (Danbury)

THESE WORKBOOKS, WHICH ARE USED IN THE ADULT BASIC EDUCATION PROGRAM IN DANBURY, CONNECTICUT, PROVIDE TEACHING MATERIALS AND DRILL EXERCISES IN MULTIPLICATION. PART I CONTAINS MULTIPLICATION TABLES, PROBLEMS, AND DRILL INVOLVING THE NUMERALS TWO THROUGH NINE. PART II CONTAINS PROBLEMS AND DRILL EXERCISES USING THE NUMERALS TEN TO TWELVE, NUMBERS WITH TWO AND THREE DIGITS, THE USE OF ZERO, AND DOLLARS AND CENTS, FOLLOWED BY EXERCISES TO TEST SPEED AND ACCURACY. (LY)

VARIED TOPICS: MULTI-LEVEL

3100 ED 179 422
Learning Partners: Reading and Mathematics.
Texas Education Agency, Austin. Div. of Curriculum Development.
Pub Date—79
Note—45p.
Pub Type— Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Applied Reading, *Content Area Reading, Elementary Secondary Education, Interpretive Skills, Mathematical Vocabulary, *Mathematics Education, *Mathematics Instruction, Reading, *Reading Comprehension, Resource Materials, Study Skills, *Symbols (Mathematics)

This publication is designed to acquaint both mathematics teachers and reading specialists with some of the skills students need to read mathematics effectively and to provide sample activities that may be used as a part of mathematics instruction to help students develop these skills. Topics covered include: Specialized Vocabulary and Symbols, Comprehension, and Study Techniques. Also included is a list of suggested books for voluntary mathematical reading and a list of resource materials for teachers. (Author/MK)

3101 ED 170 119
Lovett, C. James Snyder, Ted
Resources for Teaching Mathematics in Bilingual Classrooms.
ERIC Information Analysis Center for Science, Mathematics, and Environmental Education, Columbus, Ohio.
Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Pub Date—Jan 79
Note—60p.
Available from—Information Reference Center (ERIC/IRC), The Ohio State University, 1200 Chambers Rd., 3rd Floor, Columbus, Ohio 43212 ($1.75)
Pub Type— Reference Materials - Bibliographies (131)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—*Bilingual Education, *Cultural Awareness, Elementary Secondary Education, *Instruction, *Mathematics Education, *Resource Materials, *Spanish Speaking
Identifiers—Information Analysis Products

A substantial resource is provided for those concerned with mathematics teaching in bilingual programs. Part I provides a concise overview of the issues and problems involved in the teaching of mathematics in bilingual classrooms. It begins with a brief description of the field of bilingual education and then considers the role of mathematics teaching with respect to the language of instruction, cultural referents, and certain psychological factors. Part II consists of an annotated bibliography of materials for teaching mathematics in Spanish/English programs. A list of suppliers of bilingual mathematics materials, a list of references to general bilingual materials, and a phrase list are appended. (MP)

3102 ED 164 227
de la Rosa, Raul Hackett, Eugene deG.
National Migrant Education Program Math Skills Information System.
New Mexico State Univ., University Park. ERIC Clearinghouse on Rural Education and Small Schools.
Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Pub Date—Jan 79
Contract—NIE-R-78-0003
Note—37p.
Available from—National Educational Laboratory Publishers, Inc., 813 Airport Blvd., Austin, Texas 78702 (Stock No. EC-070, $3.50)
Pub Type— Reports - Descriptive (141)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Basic Skills, *Data Bases, Display Systems, Elementary Education, Information Needs, *Information Systems, Information Utilization, Input Output, Mathematical Concepts, Mathematical Experience, *Mathematics, Mathematics Education, *Migrant Education, Migrants, *Online Systems, *Skills, Student Evaluation, Teacher Role
Identifiers—Migrant Student Record Transfer System, *National Migrant Educ Prog Math Skills Info System

The educational background and issues which shaped the design of the National Migrant Education Program Math Skills Information System are explained in this report, along with a full description of the features of the system and its operation. It discusses the variety of math skills information used to permit teachers to input and receive math skills information about migrant students in order to insure continuity of education. Discussion covers the (1) issues and factors affecting the design of the Migrant Student Record Transfer System (MSRTS) Math Skills Information System–its users, skills information needs, math skills hierarchy, continuity, "proper" math skills; (2) background and design considerations of the MSRTS Math Skills List–nature of math as a subject matter, anatomy of a math skill statement, selection of the level of detail at which to define math skills; (3) structure of the MSRTS Math Skills List–areas, topics, subtopics, skills, code structure, sequence of skills; (4) continuity and user information needs–need to know status of student regardless of teaching methods used; (5) Math Skills Information System reports (displays) and reference documents–volume of information, mini-skills lists, level of detail for reports, standard displays, standing orders; and (6) the system's operation. Also included are samples of reports and queries. (RS)

3103 ED 159 066
Kurtz, V. Ray
Metrics for Elementary and Middle Schools: The Curriculum Series.
National Education Association, Washington, D.C.
Pub Date—78
Note—121p.; Not available in hard copy due to copyright restrictions
Available from—National Education Association, 1201 Sixteenth St., N.W., Washington, D.C. 20036 (Order Number 1714-5-00; No price quoted)
Pub Type— Books (010)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Elementary School Mathematics, Elementary Secondary Education, Inservice Education, Learning Activities, Measurement, *Metric System, Resource Materials, Secondary School Mathematics, *Teacher Education

This book is designed for teachers in elementary and middle schools who need explanations of problems and questions concerning the metric system and a source of classroom activities to aid in teaching the metric system. The book is divided into three parts. The first part is a primer of information designed to help a teacher in answering the many questions that children and parents will ask. This part also includes practice problems for all teachers involving the mathematics of metrics. The second part consists of ideas and activities that teachers of the nonmathematics curriculum may incorporate into their lessons to aid in the total metric experience of the learner. Included in this part are sections on language arts, reading, social studies, music, and art. The third part deals with classroom activities that teachers of mathematics may use. A special section is included which uses only nonstandard measurement activities designed for primary children. Attention is also given in this section to the use of metric measurements in presenting activities that are concrete, semi-concrete, and abstract in nature. The activities are labeled according to length, weight, area, volume, and temperature. (Author/MP)

3104 ED 156 528
Mathematics: Ideas for Strengthening Mathematics Skills.
New York State Education Dept., Albany. Bureau of General Education Curriculum Development.; State Univ. of New York, Albany.
Pub Date—78
Note—42p.
Pub Type— Guides - General (050)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Activity Units, *Basic Skills, *Elementary Secondary Education, Instruction, *Instructional Materials, *Mathematics Education, Mathematics Materials, Remedial Mathematics, *Teacher Developed Materials, Teaching Methods

The purpose of this publication is to give an overview of some specific schemes that have been used successfully by teachers throughout New York State to strengthen mathematics skills. The various components of this publication offer ideas that have been successful with primary, intermediate, and secondary students. Ideas included: (1) how to make use of manipulative materials, algorithms, games, relevant applications, diagnosis, and visual sequence; and (2) structural approach suggestions. (MN)

3105 ED 144 843
Systematic Teaching and Measuring Mathematics "STAMM," Mini-Sampler.
Jefferson County Public Schools, Lakewood, Colo.
Pub Date—[77]
Note—34p.; Contains occasional colored pages which may not reproduce well
Pub Type— Reports - Descriptive (141)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—*Competency Based Education, Continuous Progress Plan, *Curriculum, Elementary Secondary Education, Instruction, *Management Systems, *Mathematics Education, *Program Descriptions, Teaching Guides, Tests
Identifiers—Colorado, *Project STAMM

This booklet contains an overview and a sample of some of the curricular materials developed in Jefferson County's Systematic Teaching and Measuring Mathematics (STAMM) program. It provides continuous progress in mathematics, K-12, using management by objectives. Well-defined processes for diagnosis, instructional activities, and assessment are indicated, with hints on the need for careful record-keeping. Achievement on both standardized and criterion-referenced tests has consistently improved since the implementation of the program. Teacher resource packets, guides, and a sampler kit are available for purchase. (MS)

3106 ED 143 504
Guidelines for Mathematics Instruction in Indiana Schools, 1977.
Indiana State Dept. of Public Instruction, Indianapolis.
Pub Date—77
Note—84p.; Replaces ED 036 439
Pub Type— Guides - General (050)
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—Curriculum, *Curriculum Guides, Elementary School Mathematics, Elementary Secondary Education, *Instruction, *Mathematics Education, *Objectives, Secondary School Mathematics, *State Curriculum Guides
Identifiers—*Indiana

This set of guidelines replaces the 1969 Guidelines. Planned to assist local committees in planning curricula, it contains objectives for which local school systems must determine criteria for acceptable performance. Guiding principles on philosophy, objectives, evaluation, providing for individual differences, instructional aids, and calculators are briefly discussed. Objectives for seven strands in K-8 are presented: numbers and numeration, operations and computation, geometry, measurement, problem solving and number sentences, graphing and relations, and probability and statistics. Objectives for the secondary school are presented by course. Suggestions for implementing the guide are also included. (MNS)

3107 ED 141 112
Charbonneau, Manon P.
Learning to Think in a Math Lab.
National Association of Independent Schools, Boston, Mass.
Pub Date—Apr 71
Note—127p.; Not available in hard copy due to copyright restrictions; Photographs may not reproduce well
Available from—National Association of Independent Schools, Four Liberty Square, Boston, Mass. 02109 ($2.50)
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Discovery Learning, Elementary Education, *Elementary School Mathematics, *Experiential Learning, Instruction, *Instructional Materials, *Laboratory Procedures, *Manipulative Materials, Mathematics Education, Problem Solving

This document begins with a discussion of the author's approach to instruction in a mathematics laboratory. This discussion includes an enumeration of types of desirable or necessary equipment and advice on the management of a laboratory. The author examines issues related to achievement and readiness for more traditional school experiences in later grades, and offers points from his own educational philosophy. The major portion of the document is devoted to detailed descriptions of activities or series of activities which have been used successfully. Activity topics are quite diverse and include numeration systems, number lines, measurement, geoboard activities, map making, geometric solids, and others. The document concludes with reproductions of activity cards used by the author. (SD)

3108 ED 139 595

Miller, Richard L.

Individualized Instruction in Mathematics: A Review of Research.

Pub Date—Jan 76

Note—109p.; M.A. Thesis, University of Maryland; Not available in hard copy due to marginal legibility of original document

Pub Type— Dissertations/Theses - Undetermined (040)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Achievement, Cost Effectiveness, Elementary School Mathematics, Elementary Secondary Education, *Individualized Instruction, Instruction, *Mathematics Education, Research, *Research Reviews (Publications), Secondary School Mathematics, *Student Characteristics, *Teacher Characteristics

After a discussion of the characteristics of individualized instruction, 145 experimental studies of individualized instruction in mathematics, conducted since 1927, are reviewed. Studies are numerically classified on a 5-point scale according to the direction and significance of results concerning students' achievement and attitudes, with the highest score (4) indicating significant results favoring the experimental group. Using these scales, the average differences in achievement and attitude of students are compared on the bases of duration of the study, grade level, initial ability of students, individual differences among students and teachers, and cost factors. Other variables related to some studies were retention, transfer, and development of study skills. Summarizing the studies, the author observes that, in general, research does not support the effectiveness of individualized instruction. However, when specialized problems or objectives are involved, it can be a fruitful instructional approach. (SD)

3109 ED 137 726

Hollander, Sheila K.

Reading the Special Language of Mathematics.

Pub Date—May 77

Note—18p.; Paper presented at the Annual Meeting of the International Reading Association (22nd, Miami Beach, Florida, May 2-6, 1977)

Pub Type— Speeches/Meeting Papers (150)

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—*Content Area Reading, *Mathematics, *Mathematics Instruction, *Reading Comprehension, Reading Instruction, Secondary Education, *Symbols (Mathematics), Teaching Methods, *Vocabulary Development

Reading the language of mathematics textbooks is very different from reading the narrative in traditional basal textbooks, and children should be taught how to read in a mathematics course; teachers should not assume a transfer of skills will occur. Specific skills, such as noting details, following directions, and seeing relationships, should be taught. Students should be shown how to modify their flexible narrative reading styles to one of great deliberation, in order to understand mathematics reading material. The specialized vocabulary of mathematics and the special mathematical symbols must also be specifically taught, beginning with concrete examples when possible. Suggestions for instruction include getting the students to discuss the expository material or the verbal problem, in order to understand their thinking processes; being careful, as an instructor, not to talk too much; being sure that students understand the technical vocabulary; and preparing short-answer, multiple-choice tests to use as pretests before instruction in a particular concept. (MKM)

3110 ED 137 102

Schoen, Harold L.

Individualized Mathematics Instruction: What Are the Specific Problems?

Pub Date—[76]

Note—25p.; For related documents, see SE 022 306-307; Contains occasional light and broken type

Pub Type— Reference Materials - Bibliographies (131)

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—Achievement, Curriculum, *Elementary School Mathematics, Elementary Secondary Education, *Individualized Instruction, Instruction, Mathematics Education, *Research Reviews (Publications), *Secondary School Mathematics

Research dealing with specific aspects of individualized mathematics programs is summarized in this paper. Some explanations for the failure of self-pacing to result in superior achievement are examined. Studies dealing with student-teacher interaction in individualized programs are cited. Research with implications for new directions for individualization is reviewed. Finally, characteristics of successful students in self-paced programs are examined along with some alternate approaches to individualization. (Author/DT)

3111 ED 134 972

Reading the Language of Mathematics.

Florida State Dept. of Education, Tallahassee.

Pub Date—[75]

Note—105p.

Pub Type— Guides - General (050)

EDRS Price - MF01/PC05 Plus Postage.

Descriptors—*Content Area Reading, Context Clues, Elementary Secondary Education, Mathematics, *Mathematics Instruction, Reading Comprehension, *Reading Instruction, Study Skills, *Symbols (Mathematics), Teaching Methods, *Vocabulary Development, Word Study Skills

The purposes of this booklet are to acquaint both mathematics teachers and reading teachers with some skills which students need for effectively reading the language of mathematics and to provide sample activities which may be used as an integral part of the mathematics class, in an effort to help students develop those skills. Since mathematics is an abstract science involving the use of a system with highly specialized symbolism and technical terminology, it is suggested that the mathematics teacher accept major responsibility for teaching students to read mathematics. A section on vocabulary and symbols discusses reading mathematical symbols, the directionality of such symbols, and reading mathematical words. Following directions, interpreting graphic materials, reading mathematical sentences, and reading and solving word problems are discussed in the comprehension section. Other sections include a detailed discussion of study techniques, a list of books suggested for voluntary mathematical reading, a bibliography, and a list of resource materials suggested for teachers. (MKM)

3112 ED 105 407

Reading Mathematics.

Georgia State Dept. of Education, Atlanta. Office of Instructional Services.

Pub Date—75

Note—38p.

Pub Type— Guides - General (050)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—*Content Area Reading, Elementary Secondary Education, *Eye Movements, *Mathematics, Reading Instruction, Semantics, *Teaching Methods

Identifiers—Georgia, *Right to Read

Two processes involved in reading mathematics are discussed in this document: eye movements and relating the mathematical idea to the appropriate word or symbol. Many kinds of eye movements are used in mathematics–around, top-to-bottom, bottom-to-top, diagonal, backward and forward, and follow the arrow. Examples of each kind are presented. The language of mathematics uses many kinds of words–those that are primarily mathematics words, words of everyday usage, and words that have several different meanings, some mathematical and some not. Many examples of each of these kinds of words are presented as incentives for reading and mathematics teachers to cooperatively explore techniques used in reading that may be adapted to mathematics. (TO)

3113 ED 087 639

Smith, Seaton E., Jr., Ed. Backman, Carl A., Ed.

Teacher-Made Aids for Elementary School Mathematics. Readings from the ARITHMETIC TEACHER.

National Council of Teachers of Mathematics, Inc., Washington, D.C.

Pub Date—74

Note—192p.

Available from—National Council of Teachers of Mathematics, 1906 Association Drive, Reston, Virginia 22091 ($3.00)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—*Elementary School Mathematics, Experiential Learning, Fractions, Geometric Concepts, *Instructional Materials, *Manipulative Materials, Number Concepts, Numbers, *Teacher Developed Materials

Identifiers—*National Council of Teachers of Mathematics

A collection of articles from the ARITHMETIC TEACHER is presented which are about practical, classroom-tested ideas for the instruction and use of teacher-made instructional aids. These entries deal only with manipulative type aids. They have been selected for the clarity of purpose and relationship to contemporary topics in the elementary school mathematics curriculum. The articles provide sufficient information and specifications so that teachers can construct the aid and include directions or examples relative to using the aid for instruction. The organization of topics is based on major strands of elementary school mathematics: whole numbers, numeration, integers, rational numbers, geometry, and measurement. (JP)

3114 ED 081 590

Mathematics for Sheridan Schools, Grades K-12, Curriculum Guide.

Sheridan School District 7, Wyo.

Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.

Pub Date—69

Note—326p.

EDRS Price - MF01/PC14 Plus Postage.

Descriptors—*Curriculum, *Curriculum Guides, *Elementary School Mathematics, Instruction, Mathematics Education, *Objectives, *Secondary School Mathematics

Identifiers—Elementary Secondary Education Act Title III

This guide includes a list of general objectives and a scope chart of units to be covered in grades K-12. Objectives for specific topics are listed and are coded to the scope chart; text sources and materials are suggested; and lists of learning activities and audiovisual aids are provided. Separate sections of the guide cover topics in elementary school mathematics and junior high school mathematics; an individual lesson program for Algebra II is detailed; and topics to be covered in grade 12 are specified. A list of supplementary mathematics aids and sources is included. This work was prepared under an ESEA Title III contract. (DT)

3115 ED 071 878

Briggs, John W.

Idaho Curriculum Guide in Mathematics K-12.

Idaho State Dept. of Education, Boise. Div. of Instruction.

Pub Date—Sep 70

Note—331p.

EDRS Price - MF01/PC14 Plus Postage.

Descriptors—*Behavioral Objectives, Curriculum, *Curriculum Guides, *Elementary School Mathematics, *Instruction, *Mathematics Education, Secondary School Mathematics, Teaching Methods

The content of this guide has been organized under five major topics: number and operations; sets, functions, relations, systems, and logic; geometry; measurement and estimation; and selected topics. A scope and sequence chart is given for each of the topics for grades K-12. Behavioral objectives, teaching aids and suggestions are listed for each of the topics at every grade level from K-8. A list of 17 references on problem solving is included. (DT)

3116 ED 062 200

Classroom Proven Motivational Mathematics Games, Monograph No. 1.

Michigan Council of Teachers of Mathematics.

Pub Date—Dec 71

Note—56p.; Guidelines for Quality Mathematics Teaching

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—Class Activities, *Educational Games, *Elementary School Mathematics, Geometric Concepts, *Mathematical Enrichment, Mathematics Education, Number Concepts, *Puzzles, *Secondary School Mathematics

This collection includes 50 mathematical games and puzzles for classroom use at all grade levels. Also included is a wide variety of activities with cubes, flash cards, graphs, dots, number patterns, geometric shapes, cross-number puzzles, and magic squares. (MM)

3117 ED 062 036
Fort Benton Mathematics Curriculum Outline.
Fort Benton Public Schools, Mont.
Spons Agency—Office of Education (DHEW), Washington, D.C. Projects to Advance Creativity in Education.
Pub Date—71
Note—97p.
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—Algebra, *Curriculum Guides, *Educational Objectives, Elementary Education, Geometry, *Instructional Materials, Kindergarten, Mathematical Concepts, *Mathematics Curriculum, Measurement, Number Concepts, Secondary Education, *Small Schools

The mathematics curriculum of the Fort Benton school system was designed with funds under Title III of the Elementary and Secondary Education Act to present all students with a basic knowledge of mathematics and to provide the gifted child with an opportunity to develop to the best of his ability the mathematical skills and theory demanded by a technological society. Basic goals of the curriculum include development of a knowledge of mathematical concepts, the skill of computation, an understanding of mathematical terminology, and a knowledge of career opportunities in mathematics. The curriculum consists of a sequential program for grades K-12 which includes algebra, geometry, and consumer mathematics. Objectives and instructional resources are specified for each grade level. (JH)

3118 ED 059 910
Mathematics Framework for California Public Schools, Kindergarten Through Grade Eight. The Second Strands Report.
California State Dept. of Education, Sacramento.
Pub Date—72
Note—128p.
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—Algebra, Arithmetic, *Curriculum, *Elementary School Mathematics, Evaluation Criteria, Geometry, Mathematics Education, Secondary School Mathematics, *State Curriculum Guides
Identifiers—California

This report of a statewide Mathematics Advisory Committee outlines the kindergarten through grade eight mathematics curriculum in terms of nine "strands": Numbers and Operations, Geometry, Measurement, Applications of Mathematics, Statistics and Probability, Sets, Functions and Graphs, Logical Thinking, and Problem Solving. Broad goals for the entire program, and specific goals for each strand, are stated. Examples are given of activities and content leading to these goals. Material in the strands is not allocated to specific grade levels, but related to the students' overall development. An algebra course for grade eight is discussed, and the 1968 state criteria for the evaluation of textbooks is reprinted in an appendix. This document is intended to be of use to writers and publishers as well as teachers. (MM)

3119 ED 051 178
K-12 Mathematics Curriculum Guide.
Reading Community Schools, Ohio.
Pub Date—68
Note—210p.
EDRS Price - MF01/PC09 Plus Postage.
Descriptors—*Curriculum Guides, *Elementary Education, Grade 1, Grade 2, Grade 3, Grade 4, Grade 5, Grade 6, Grade 7, Grade 8, Grade 9, Grade 10, Grade 11, Grade 12, Intermediate Grades, *Kindergarten, *Mathematics, *Secondary Education

GRADES OR AGES: K-12. SUBJECT MATTER: Mathematics. ORGANIZATION AND PHYSICAL APPEARANCE: The guide is divided into three sections, one each for elementary grades, middle grades, and high school. Each section is further subdivided by grade level. Sections are laid out in four columns across two pages. Column headings are concepts, teaching methods and learning activities, resources, and evaluation. The guide is mimeographed and loose-leaf bound with a soft cover. OBJECTIVES AND ACTIVITIES: General objectives are outlined in an introductory section. Suggested activities are correlated with specific mathematical concepts and specific objectives. Most of the activities in middle grades and high school consist of working problems in textbooks. INSTRUCTIONAL MATERIALS: Material needed for an activity are listed with the activity description. Most materials listed for the middle grades and high school are page references in textbooks. STUDENT ASSESSMENT: Suggestions for evaluation accompany each group of activities correlated with a concept–usually teacher observation in the lower grades and teacher-developed and textbook quizzes in the upper grades. (RT)

3120 ED 050 072
Mathematics Guide, K-12.
Volusia County Board of Public Instruction, De Land, Fla.
Note—98p.
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—*Curriculum Guides, *Elementary Education, *Kindergarten, *Mathematics Curriculum, *Secondary Education

GRADES OR AGES: K-12. SUBJECT MATTER: Mathematics. ORGANIZATION AND PHYSICAL APPEARANCE: The guide is divided into numerous straight-text chapters interspersed with diagrams and charts. It is xeroxed and spiral-bound with a paper cover. OBJECTIVES AND ACTIVITIES: General objectives for mathematics are outlined in an introductory section. More specific objectives are listed for three levels: grades K-6, 7-9, and 10-12. Subsequent chapters present a method for grouping students into four levels on the basis of ability and for selecting textbooks for each level. Detailed content sequence charts for grades K-6 keyed to two different textbook series are included. Content suggestions for grades 7-9 and 10-12 are brief and general. Several appendixes contain lists of suggestions for mathematics projects. No mention is made of appropriate grade or ability level for these activities. A special section gives hints on helping slow learners. INSTRUCTIONAL MATERIALS: No mention, except of standard textbooks. STUDENT ASSESSMENT: Guidelines suggest the use of both standardized and teacher-made tests. Several sample diagnostic tests are included. (RT)

3121 ED 036 451
[Cambridge Conference on School Mathematics Feasibility Studies 9-13.]
Cambridge Conference on School Mathematics, Newton, Mass.
Pub Date—[69]
Note—16p.
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—*Curriculum Development, *Elementary School Mathematics, *Instructional Materials, *Mathematics, *Secondary School Mathematics
Identifiers—Cambridge Conference on School Mathematics MA

These materials are a part of a series of studies sponsored by the Cambridge Conference on School Mathematics which reflects the ideas of CCSM regarding the goals and objectives for school mathematics K-12. Feasibility Studies 9-13 contain a wide range of topics. The following are the titles and brief descriptions of these studies. Number 9–"Streams of Ideas on Checks, Approximations, and Order of Magnitude Calculations." This paper suggests that students should be made aware of major sources of errors in calculations so that they can concentrate on learning mathematical concepts. Number 10–"Complex Numbers Leading to Trigonometry." This study introduces the reader to Trigonometry by the use of complex numbers. Number 11–"The Use of Negative Digits in Arithmetic." Negative integers are introduced after the four fundamental operations have been mastered. The notation 3 is used for negative three. Number 12–"Use of the Shift Theorem in Differential Equations." This study describes the use of the Shift Theorem to solve certain types of differential equations. Number 13–"Topology in 10th Grade and After." A list of topological concepts which are relevant to high school mathematics is given in this study. [Not available in hardcopy due to marginal legibility of original document.] (FL)

3122 ED 030 556
Bolton, Earle Gueringer, June
Edgewood Independent School District Instructional Television Guides - Countdown, Teacher's Guide 5; Safari, Teacher's Guide 5; Probe, Teacher's Guide 6; Abacus, Teacher's Guide 6; Mathletics, Teacher's Guide 7; Algebraically Speaking, Teacher's Guide 8; Related Math I & II, Teacher's Guides 9 & 10; Spectra, Teacher's Guide 9.
Edgewood Independent School District, San Antonio, Tex.
Spons Agency—Office of Education (DHEW), Washington, D.C. Bureau of Elementary and Secondary Education.
Pub Date—65
Note—298p.
EDRS Price - MF02/PC12 Plus Postage.
Descriptors—Algebra, Arithmetic, Course Content, *Course Objectives, Curriculum, *Educational Television, *Elementary School Mathematics, Geometry, *Secondary School Mathematics, *Teaching Guides

Enclosed is a number of booklets containing lesson outlines of materials in mathematics and science. These outlines are designed to give teachers and students an idea of what to expect when a telecast is schedules for their classes. The tele-lessons are given for the purpose of providing enrichment activities and giving coherence to the entire mathematics and science program. It is expected that these lessons, which are designed to be applicable to the average student, will aid the teacher in presenting some of the more obscure and/or difficult topics of the course. The sequence of lesson outlines in this collection are (1) Countdown, Grade 5; (2) Abacus, Grade 6; (3) Mathletics, Grade 7; (4) Algebraically Speaking, Grade 8; and (5) Related Math I Grade 9, and II, Grade 10. (RP)

3123 ED 018 369
ENGELKING, D.F.
MATHEMATICS PROGRAM FOR IDAHO PUBLIC SCHOOLS.
Idaho State Dept. of Education, Boise.
Pub Date—65
Note—36P.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Advanced Placement, Algebra, *Arithmetic, Curriculum, *Curriculum Guides, Elementary School Mathematics, Geometry, *Mathematics, *Secondary School Mathematics, Spiral Curriculum
Identifiers—IDAHO, Idaho (Boise), IDAHO STATE DEPARTMENT OF EDUCATION

THIS CURRICULUM GUIDE FOR ALL GRADES OF PUBLIC SCHOOL INSTRUCTION IS INTENDED TO ASSIST LOCAL SCHOOL DISTRICTS IN DESIGNING AN ADEQUATE MATHEMATICS PROGRAM THAT REFLECTS THE MODERN APPROACH. THE GUIDE PRESCRIBES A PROGRAM WHICH IS SUFFICIENTLY FLEXIBLE TO BE USED BY LARGE DISTRICTS HAVING A COMPLETE THREE-TRACK MATHEMATICS PROGRAM WITH FIVE YEARS OF SECONDARY MATHEMATICS AVAILABLE, AS WELL AS BY SMALL SCHOOLS OFFERING ONLY A MINIMUM PROGRAM. THE FOLLOWING INFORMATION IS INCLUDED IN THE MAIN BODY OF THE REPORT–(1) THE OUTLINE OF SCOPE AND SEQUENCE FOR THE ELEMENTARY MATHEMATICS PROGRAM, GRADES 1-6, (2) SUGGESTED CONTENT FOR THE PROGRAM, GRADES 1-8, AND (3) TITLE AND COURSE DESCRIPTION FOR THE MATHEMATICS OF THE SECONDARY CURRICULUM. IT IS HOPED THAT THESE GUIDES WILL BE OF SOME USE AT THE LOCAL LEVELS IN THE INITIATION OF PLANNING AND WRITING OF PROGRAMS THAT WILL ENSURE A PROGRESSIVE, ADEQUATE, AND CONTINUOUS PROGRAM RELEVANT TO THE NEEDS OF LOCAL STUDENTS. (RP)

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